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Table of Contents

ORIGINAL ARTICLES— Page

Prostatectomy—Rationale and a Technique, by N. J. Bonnin .. 361
Hrynstchak Prostatectomy, by Warwick Macky .. 368
The Scope of Total Prostatectomy, by S. C. Fitzpatrick .. 369
Retropubic Prostatectomy: An Evaluation of 1200 Operations, by Michael Salvaris .. 370
Some Aspects of Carcinoma of the Prostate, by James Mortensen .. 376
Radical Perineal Prostatectomy for Carcinoma of the Prostate, by William G. Lucas .. 378

REVIEWS—

The Ætiology of Infective Diseases .. 379
Hypertensive Disease: Diagnosis and Treatment .. 379
The Treatment of Diabetes Mellitus .. 379
Comparative Endocrinology .. 380
Human Nutrition and Dietetics .. 380
Cancer of the Skin .. 380

BOOKS RECEIVED .. 380

LEADING ARTICLES—

The Armed Forces Medical Services .. 381

CURRENT COMMENT—

Wound Débridement .. 382
The Treatment of Warts by Hypnosis .. 383
The Australian Council of Social Welfare .. 383

ABSTRACTS FROM MEDICAL LITERATURE—

Medicine .. 384

MEDICAL SOCIETIES—

The Urological Society of Australasia .. 386
Pædiatric Society of Victoria .. 387

BRITISH MEDICAL ASSOCIATION—

South Australian Branch: Scientific .. 390
Victorian Branch: Scientific .. 391
Victorian Branch: Preventive Medicine Section .. 392

OUT OF THE PAST .. 392

CORRESPONDENCE— Page

Cancer, A Disease of the Nervous System .. 392
Population Pressure .. 393
General Pharmaceutical Benefits .. 393
The Problem of Injury and Accident .. 394
Doctors' Bag Supplies .. 394
Tetanus Prophylaxis .. 394
Cortisone-Induced Herpes Blindness .. 394

OBITUARY—

Ernest Farence Chin .. 395
Robert Colin Moore Laverty .. 395

POST-GRADUATE WORK—

The Post-Graduate Committee in Medicine, the University of Sydney .. 397
Department of Surgery, University of Sydney .. 397
Seminars at Royal Prince Alfred Hospital .. 397

NOTES AND NEWS .. 398

NAVAL, MILITARY AND AIR FORCE—

Appointments .. 398

AUSTRALIAN MEDICAL BOARD PROCEEDINGS—

New South Wales .. 399

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA .. 399

MEDICAL APPOINTMENTS .. 400

NOMINATIONS AND ELECTIONS .. 400

DEATHS .. 400

DIARY FOR THE MONTH .. 400

MEDICAL APPOINTMENTS: IMPORTANT NOTICE .. 400

EDITORIAL NOTICES .. 400

PROSTATECTOMY—RATIONALE AND A TECHNIQUE.[1]

By N. J. BONNIN, M.S. (Adelaide), F.R.C.S. (England), F.R.A.C.S.

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DESPITE good results for the majority, there is still a minority of patients for whom the result of prostatectomy is not happy. Apart from the immediate risks of hæmorrhage, infection or death from exacerbation of some other disease, late complications may occur, among which are stricturing of the bladder neck or prostatic cavity, incontinence of urine, recurrent adenoma formation and urethral stricture, and in a large number of cases in which the final result is good, post-operative convalescence is prolonged by a urinary tract infection which may persist for months.

While it is obviously desirable to search for the cause of each of these complications in order to try to prevent them, it may be more rewarding to examine the reasons for the satisfactory results. This implies some consideration of the function and mode of healing of tissues concerned in the operation.

[1] Read at the twelfth annual general meeting of the Urological Society of Australasia, Melbourne, March, 1959.

The Prostatic Cavity.

It is well known that after enucleation of an adenoma of the prostate, a layer of compressed prostatic tissue, "the false capsule", remains behind. Flocks (1938) and also Berry (1946) have shown that innumerable prostatic ducts open on to the raw surface of this remaining prostatic tissue, and from the open ends of these ducts epithelium creeps out, undergoes metaplasia to transitional epithelium and rapidly covers the raw surface. It is this early epithelialization which checks scar formation and thus prevents stricture and stenosis of the prostatic cavity.

If the false capsule is removed with the prostate, then stricture formation will be invited. This accident is likely to happen if the attempt is made to enucleate a gland in which localized adenoma formation has not occurred.

In all cases of stricture of the prostatic fossa or bladder neck which I have seen, the tissue at the site of the stricture has lacked any covering of prostatic tissue. In contrast, that part of the prostatic cavity which had remained open has been lined with an epithelium covering an uneven surface, and a small cut with the resectoscope has exposed unmistakable glistening prostatic tissue beneath it. The only reasonable explanation of this finding is that, at the site of stricture formation, fibro-muscular tissue had been left exposed, and this was later followed by the inevitable sequence of the formation of granulation tissue, fibrosis and subsequent contraction of the scar.

The only way to avoid or minimize scarring is to provide an early epithelial cover for a raw surface, and it is fortunate that in the prostatic cavity this can be done merely by ensuring that a layer of prostatic tissue is left lining the true capsule.

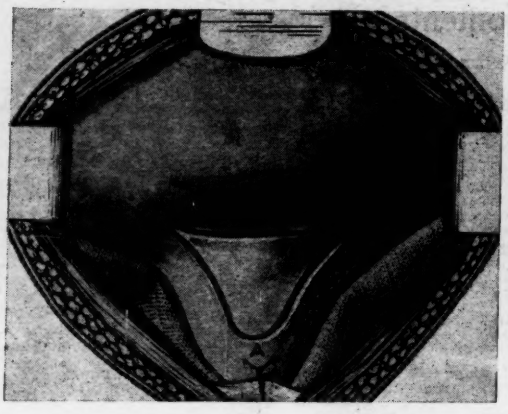

Figure I.

Small fibrous prostate. Incision; interrupted lines show how incision may be extended. Stay suture at prostatic apex. Rounded lower end allows nice approximation of bladder flap. (See Figure IX.)

The Bladder Neck.

At the bladder neck, prostatic tissue is a pathological intrusion. The removal of a tumour which has thrust itself in the submucosal plane up into the bladder must and does leave a raw surface of fibro-muscular tissue at the bladder neck when it is removed.

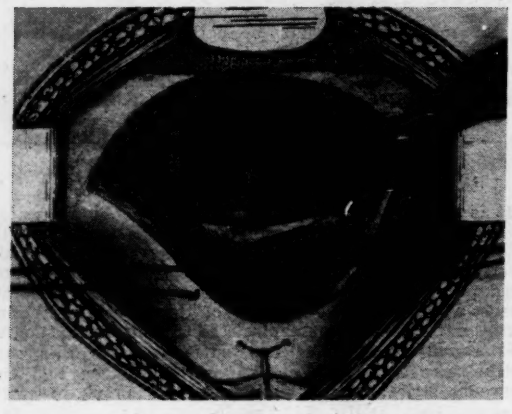

Figure II.

Small fibrous prostate. Anterior capsule and sphincter have been removed and bladder neck spreader (not shown) inserted. Incision is made along elevated bladder neck. Lateral stay sutures, inserted where shown, are tied to the Millin retractor and hold up the cut edges of the capsule, thus increasing exposure and decreasing bleeding.

Berry (1949) has microscope slides of the bladder-neck region taken by resectoscope biopsy at various stages after operation, and these show a granulating surface being covered by epithelium creeping down from the edge of the bladder mucosa above, and up from the newly epithelialized false capsule below. Thus, at the bladder neck the amount of scarring and subsequent contraction will depend on the result of a race between epithelial cells and fibroblasts. Epithelialization will be delayed, and thus scar formation increased, by a wide, raw surface, by infection and by the damage done by deep diathermy burns.

A contracting scar about the bladder neck will not cause symptoms unless the contraction progresses to a degree sufficient to close the bladder neck almost completely.

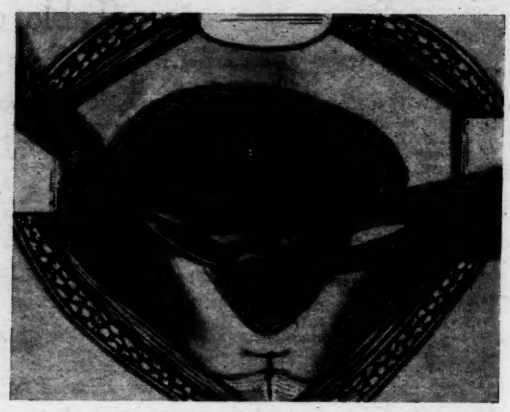

Figure III.

Small fibrous prostate. The posterior sphincter below the trigone is picked up, the trigone undermined for a short distance, and a deep wedge of the sphincter removed.

In the small fibrous type of gland, the bladder neck is often thick and hypertrophic, so that the raw surface is wide, and in addition the initial diameter of the bladder neck is usually small; it is in this type of case that post-operative stricture of the bladder neck is not an uncommon sequel.

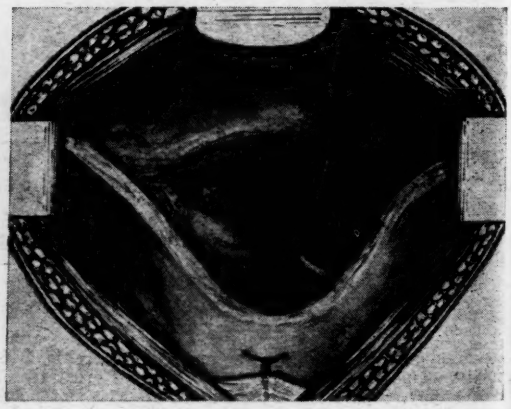

Figure IV.

Small lateral lobes are present (enucleation with finger is not feasible). Trigone has been undermined and sphincter cut away from beneath it. Tops of lateral lobes are now clearly visible. Lobes are bitten away piece by piece with Denis Browne forceps, a layer of prostatic tissue being left still lining the capsule.

There can be little question that the proper way to prevent stenosis should be, not only to enlarge the bladder neck, but also to eliminate the raw surface, either by excising it or by providing immediate epithelial cover for it.

Quite apart from the complication of late stenosis, early healing is obviously going to mean a shorter convalescence and the early elimination of any infection which may be present.

Continence of Urine after Prostatectomy.

The explanation for continence of urine after prostatectomy has been provided by an interesting cine-radiographic study of the vesical sphincter by Caine and Edwards (1958). By studying both normal males, continent post-prostatectomy patients and one patient incontinent after prostatectomy, and by reexamination of some patients with the external sphincter put out of action by a pudendal nerve block, they have demonstrated that it is the apex of the prostatic capsule itself which is the involuntary urinary sphincter after prostatectomy. The striated muscle of the external sphincter provides the power to cut off the flow of urine at will; but unless the apical prostatic capsule is intact, then as soon as voluntary effort is relaxed urinary leakage occurs.

FIGURE V.

Photograph taken at operation showing trigonal flap being freed. The left ureteric orifice can be seen medial to the tip of the scissors. It is essential that the ureteric orifices be identified.

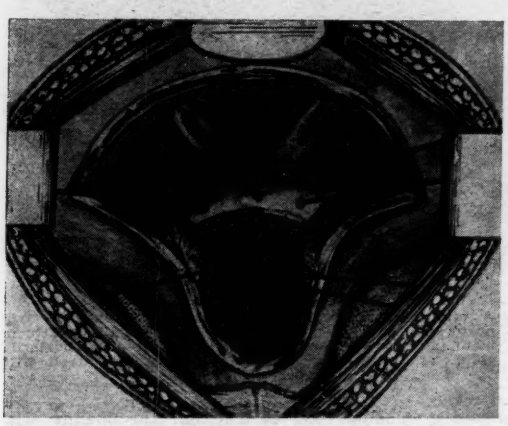

FIGURE VI.

Small fibrous prostate. Note the position of the postero-lateral incisions which free the trigonal flap. The three sutures which will fix the flap down are shown in place.

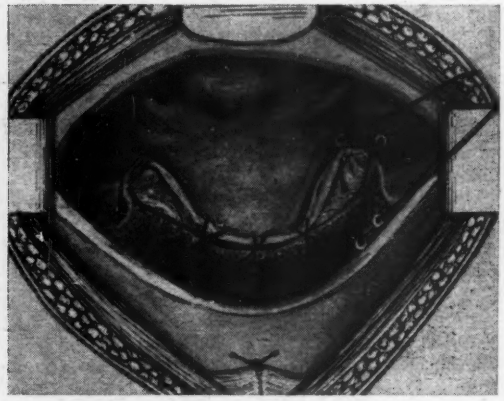

FIGURE VII.

Small fibrous prostate. Trigonal flap has been fixed down with three interrupted sutures. These sutures are all placed before any are tied. One postero-lateral suture has been placed. This will close the defect made by the postero-lateral incision and also control arterial bleeding. An over-and-over stitch is inserted so deeply that it reaches or penetrates the external surface of the bladder and prostatic capsule, compressing the branches of the prostatic artery.

FIGURE VIII.

Small fibrous prostate. Photograph at operation showing flap sutured down. Note exposure of prostatic fossa from which prostate has been bitten away piecemeal.

My own experience with total prostatectomy is in accord with these findings.

In 1950, three patients were subjected to total prostatectomy for carcinoma. In the endeavour to remove the tumour completely, care was taken to excise the whole of the apical prostatic capsule. All these patients became incontinent of urine. They all retained power to stop the flow of urine voluntarily, but as soon as their voluntary effort relaxed loss of urine occurred.

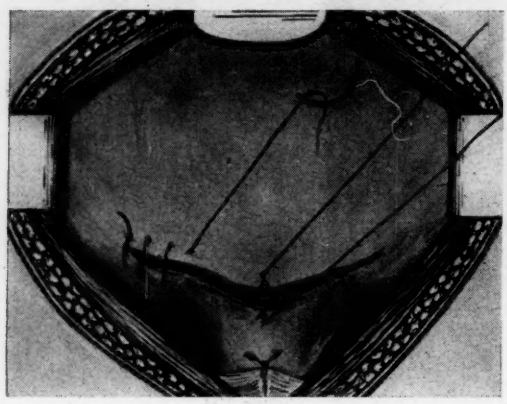

FIGURE IX.

Small fibrous prostate. Closure of anterior incision. Note central suture. A continuous suture begins on each side and progresses towards the centre, where the two ends are tied. The bladder mucosa is caught with every stitch.

Fitzpatrick (1953) claimed to have preserved continence in a series of total prostatectomies. At a visit made to his hospital, it was noted that he cut across the capsular apex, a small portion of which remained. In all total prostatectomies performed since that date, care has been taken to leave a small button of prostatic capsule at the apex. Incontinence has occurred in only one case (though fortunately this has to a large degree recovered). In this case, the apical capsule was soft and friable, and was known to have been damaged as an operative accident.

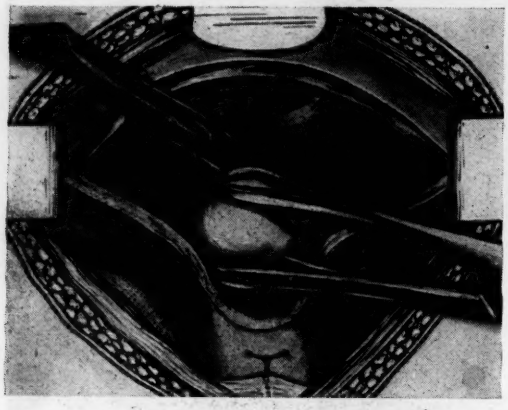

FIGURE X.

A middle lobe is present, which is held forward. Incision at junction of lobe and trigone.

It seems reasonable to conclude that the apex of the prostatic capsule itself is the post-prostatectomy sphincter, and the lesson for the surgeon is that extreme care must be taken to avoid damage to the capsule at the apex of the gland.

Need for Exposure of the Prostatic Cavity.

The aim of the operation should be to remove all the prostatic tissue except for a thin layer lining the true capsule, for if any large amount of prostatic tissue or if seed adenomata are left behind, then recurrent adenoma formation is to be expected. When the tumour to be removed is a well-encapsulated adenoma, then this aim can be attained well enough by means of blind finger enucleation. But it is to be remembered that, besides the well-differentiated adenomata, there are other types of prostatic disorder to be dealt with—the fibrous glands, the congenital bladder-neck obstruction, the glands with a false capsule packed with seed adenomata, apart from the unexpected carcinomata. Such glands make up more than one-quarter of the series reported here.

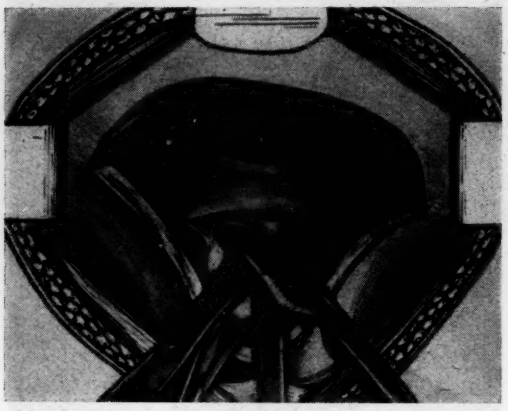

FIGURE XI.

A middle lobe is present. The trigone is undermined.

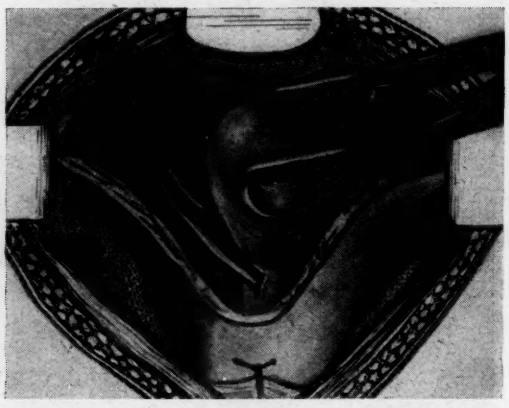

FIGURE XII.

A middle lobe is present; it has been dissected free posteriorly and laterally until the only remaining attachment is urethra. This is cut with scissors. The posterior sphincter, trigone and lateral lobes are then dealt with as described before.

These glands cannot be enucleated, and if a proper operation is to be performed in such cases without risk of damage to the capsule at the apex, then the first need is for adequate exposure of the prostatic cavity. It is often advised that such glands should be selected beforehand and dealt with by transurethral resection; but it is not

easy to select these glands before operation, and I have to confess to being repeatedly surprised by a gland larger or smaller or tougher than had been thought. For me at least, there has been a need for a procedure which would enable any gland encountered on the operating table to be dealt with comfortably and properly.

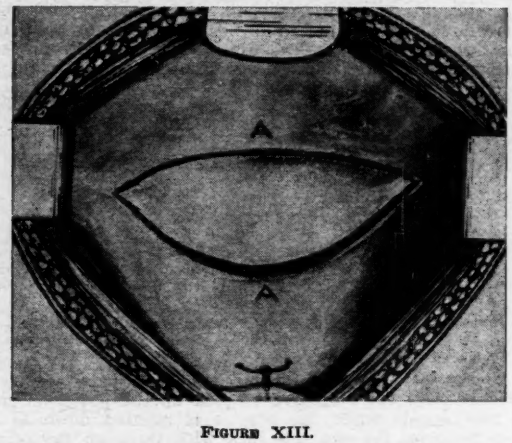

FIGURE XIII.

The large adenoma. Incision; note that the lower incision is curved more strongly than the upper, because the bladder stretches and the capsule does not stretch. The incision gives good exposure and excises the anterior segment of the internal sphincter.

It is with the foregoing considerations in mind that the operation to be described has been developed during the last six years.

The operative technique has been described elsewhere (Bonnin, 1958); but the procedure can be followed from the illustrations which accompany this article.

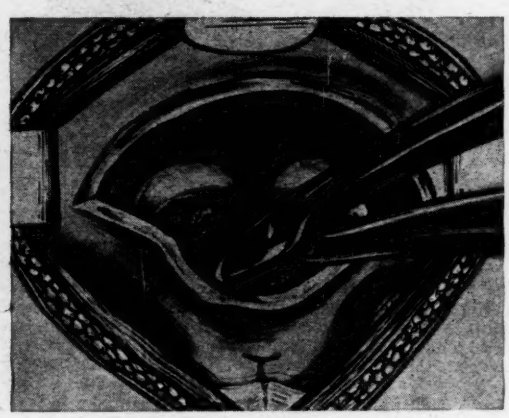

FIGURE XIV.

The large adenoma. Exposure after removal of window. Plane between adenoma and false capsule opened up with scissors.

The main feature of the operation is the approach to the prostate by the removal of a window from the bladder neck and the anterior aspect of the prostatic capsule, and this provides what is probably the best possible exposure of the prostatic bed and the distal portion of the bladder.

Figure I shows the incision in the case of a small fibrous prostate. The incision here is really a modified Y-shaped incision; an imaginary letter Y is removed with a margin of tissue all round it. When the incision is closed, the effect is that of a Y-V plasty and the bladder neck is widened; but in addition, the raw surface of the bladder neck in front has been removed, and the rounded lower end of the incision in the prostatic capsule allows nice approximation of the bladder wall to it. In patients in whom the gland is large and there is no need to widen the neck of the bladder, the tissue removed takes the form of an ellipse (Figure XIII).

There appear to be no drawbacks to this approach. Closure is easy, and in particular there does not seem to

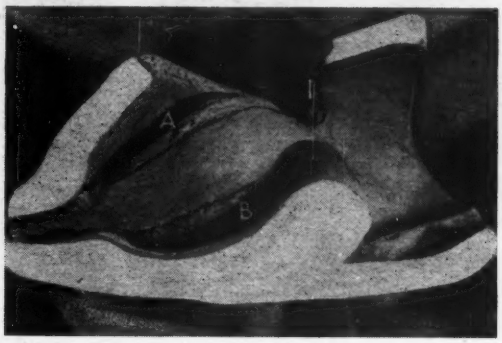

FIGURE XV.

The large adenoma. Sagittal section of model to show method of enucleation. Space "A" was opened first by blunt scissor dissection, then with the finger. Space "B" was broken into by the finger curled round the lobe. The apex is still attached by a strip of prostatic urethra.

be any risk of fistula, probably because tissues are sutured without tension, and the long axis of the sutured wound is transverse, in the line of most of the muscle fibres of the bladder in this region.

The prostate is enucleated lobe by lobe if it is large and adenomatous, or bitten away piecemeal with suitable forceps if it cannot be enucleated. Care is taken to remove the middle lobe from above down, to avoid damaging the

FIGURE XVI.

The large adenoma (sagittal section of model). If the apex does not come away readily, no force is used. The apex is cut off with scissors and later removed piecemeal with Denis Browne forceps. Gentleness at the apex is essential. Damage to the true capsule at the apex must be avoided, since it is the post-prostatectomy sphincter

ejaculatory ducts. An elliptical piece of the posterior aspect of the bladder neck is removed, as is common practice, but it is removed from below and beneath the trigone, which is spared. A postero-lateral snip on each side allows the trigone to drop and cover the raw surface at the bladder neck. Before the trigone is undermined or freed, the ureteric orifices must be located with certainty. Sutures placed deeply at the bladder neck postero-laterally control arterial bleeding. These are Harris (1928)

hæmostatic sutures. Other bleeding points are dealt with by underrunning with a needle and catgut. Diathermy coagulation of bleeding points on the raw surface of the prostatic bed is avoided. Deep burns delay epithelialization, and late secondary hæmorrhage is not uncommon when the slough resulting from such a burn separates.

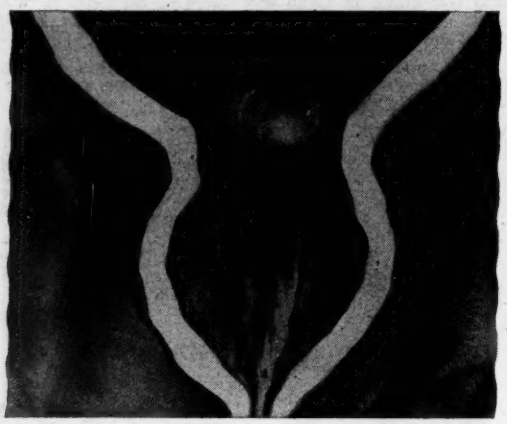

FIGURE XVII.

The large adenoma (coronal section of model). Section of model, showing appearance after removal of the lateral lobes. The middle lobe and a strip of urethra remain. The middle lobe will now be removed from above down, as shown in Figures X, XI and XII, and the prostatic urethra will be cut across somewhere about "X", the proximal portion being removed with the underlying middle lobe. The remainder of the operation then follows the plan already described.

A Foley catheter is usually employed for urinary drainage (number 22F with a 30 ml. bag).

FIGURE XVIII.

Flexible copper back blade in Millin retractor.

Instruments.

This operation can be done with the ordinary kit of Millin instruments, but certain additional instruments are of considerable help.

A Millin retractor is used, but the back blade has been discarded and replaced by a blade made of 14 gauge copper (Figure XVIII), which enables adequate exposure to be obtained in different-sized patients. The end of the copper strip has been widened and beaten concave and the edge thickened, and it follows the shape of the end of Harrington's retractor.

A Millin sucker is employed (Figure XIX), but the cross wires of the Harris sucker have been added to it, and it appears to combine the good points of both instruments. The thumb-operated tap shuts off the sucker when not in use, and this not only prevents an annoying noise, but also allows the vacuum in the sucker bottle to build up. The crossed wires at the tip almost entirely prevent obstruction by flaps of tissue, and suction occurs right at the tip of the instrument.

FIGURE XIX.

Sucker with Harris crossed wires at end of Millin sucker.[1]

A pair of nine-inch forceps with fine catsclaw teeth (Figure XX) are employed to pick up the posterior part of the capsule when the trigone is sutured down to it. Two teeth on the one side lock with three on the other, and the teeth are fine and sharp. Without this instrument the posterior part of the capsule is not easy to pick up.

Denis Browne's angled blunt-grip forceps (tonsil-holding forceps) are most useful, and serve both to bite away prostatic tissue and to enable tissues to be held without damage (Figure XXI).

FIGURE XX.

End of nine-inch catsclaw forceps.[1]

A boomerang needle is not used, as it has a cutting edge which is apt to cause bleeding. A two needle-holder technique is preferred, using a round-bodied Mayo needle. A Joly-type needle holder (Figure XXII) with its short-angled end is of considerable assistance here.

Post-Operative Care.

As a routine, the catheter and suprapubic drain are removed within 48 hours, though occasionally, if there are still clots in the urine, the catheter may be left for a day or so longer. The patient is usually out of bed by the fourth or fifth day. Penicillin and streptomycin are employed during the first three days, though if a urinary culture has shown the urine to be infected, the appropriate antibiotic is used instead.

Results.

The results are set out in Table I.

In the period January 1, 1955, to December 31, 1958, 262 patients have been operated upon by this method with

[1] The sucker and copper back blade were made by Both Equipment Ltd. The catsclaw forceps have been made by altering the end of a pair of long plain forceps.

seven deaths, an overall mortality rate of 2·7%. They have been separated into (i) patients operated on in private practice and (ii) those operated on in a public hospital, as the patients in private practice are subject to the favourable selection of economic circumstances.

Patients operated upon by other methods are also shown, so as to include in Table I all patients referred for surgery during the period. (Patients with carcinomata are not included.)

TABLE I.

Bladder-Neck Obstruction, Non-Malignant, from January 1, 1955, to December 31, 1958.

Procedure.	Number of Patients.	Deaths.
Private practice:		
Enucleation of large tumour	157	4
Piecemeal removal of small tumour	59	—
Relief of post-prostatectomy bladder-neck stricture	1	
	217	4
Public hospital patients:		
Enucleation of large tumour	23	1
Piecemeal removal of small tumour	17	2
Relief of congenital bladder-neck obstruction	3	—
Relief of post-prostatectomy bladder-neck stricture	2	—
	45	3
Total	262	7 (2·7%)
Transurethral resection:		
Private practice	11	—
Public hospital patients	22	1
Other types of open operation, private practice	6	1

Causes of Death.

The causes of death in the series may be summarized as follows: (i) Pneumonia in a patient, aged 80 years, suffering from senile dementia, which became much worse after surgery. (ii) Multiple venous thromboses and pulmonary embolus in a patient aged 62 years with a "++++" Wassermann reaction. (ii) Listed as "bronchopneumonia" in the hospital record; no autopsy; patient aged 71 years. (iv) Cerebral hæmorrhage (proven by carotid arteriograph), severe generalized arteriosclerosis and hypertension; patient aged 64 years. (v) Probably overwhelming staphylococcal infection three days after surgery; culture of urine disclosed an organism insensitive to the antibiotic used; patient aged 84 years. (vi) Coronary thrombosis 16 days after surgery; patient aged 84 years. (vii) Massive hæmatemesis from duodenal ulcer; death followed emergency gastrectomy; patient aged 84 years.

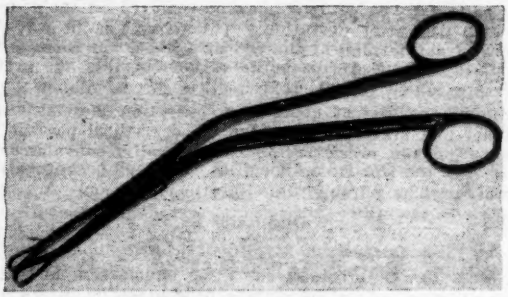

FIGURE XXI.

Denis Browne's angled blunt-grip forceps (tonsil-holding forceps).

These deaths illustrate the fact that the major risk in this group of patients is the exacerbation of another existing disease due to the disturbance occasioned by surgery. This fact constitutes a strong argument against emergency prostatectomy, and no patient in this series has been operated upon as an emergency. Risk can be minimized only by careful assessment of the patient's general condition and by proper medical care of the other disease, and this entails delay.

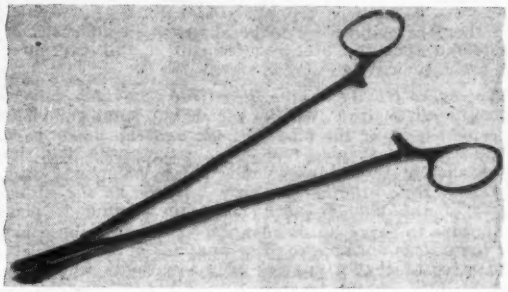

FIGURE XXII.

Joly needle holder.

Comments.

This series is too small for mortality figures to have much meaning. The only comment that can be made is that the operative technique does not appear so far to have carried any increased risk to the patient as compared with other procedures.

Removal of part of the anterior aspect of the capsule and bladder neck does not seem to entail any risk of urinary fistula, probably because muscle fibres in this region are predominantly circular, and because the wound is closed in the line of tension and not across it. Of the 262 cases reported here, temporary leakage of urine occurred in one, in which a heavy urinary infection was present. A catheter was reinserted for 10 days, and no further leakage occurred.

Temporary incontinence of urine occurred in one patient suffering from cerebral arteriosclerosis almost to the point of senile dementia; but he recovered full control within three weeks. It is not known whether incontinence was due to mechanical or neurogenic cause. In most cases sexual potency does not seem to have been disturbed, except that ejaculation into the bladder occurs after operation. (The fact that the patient, though not rendered impotent, will be sterile, must be taken into account when operation for congenital bladder-neck obstruction in young persons is under consideration.)

The incidence of complications such as hæmorrhage and infection has not been recorded. In general, however, the patients' convalescence has been smoother than with other operative procedures that I have used, and the incidence of such complications has been low, though troublesome hæmorrhage does occasionally occur, and there have been a few cases of epididymitis and wound infection.

Whether this procedure will prevent bladder neck stenosis only time will tell, but no cases of bladder neck contracture have been encountered so far among patients who have been operated on by this technique.[1]

[1] Since this paper was delivered, one patient has reported back with a stricture of the prostatic fossa. In this case the patient's symptoms had been due to a small fibrous prostate. Panendoscopy after dilatation of the stricture showed the distal fossa in the region of the prostatic apex to be wide open. The middle region of the prostatic cavity had closed and the bladder neck was widely open. Endoscopic resection showed the stricture to consist of a ring of fibrous tissue, without any covering of prostatic tissue. It would seem that the stricture could have been avoided either by carrying the bladder flap further distally in front, or by less complete removal of the prostatic tissue in the mid-prostatic region, and the complication is regarded as a fault of technique rather than of method

Summary.

In summary, whatever detail of operative technique is employed, it is suggested that certain surgical principles should be applied to the operation of prostatectomy.

Any true prostatic capsule remaining should be left lined by a layer of prostatic tissue. The raw surface at the bladder neck should be eliminated. Extreme precaution should be taken to avoid injury to the capsule at the apex of the prostate. Removal of adenomatous tissue must be complete.

If these principles are to be observed in all cases, it is considered that the first requirement is full exposure of the prostatic cavity.

The operative technique described provides adequate exposure through a window made by removal of the anterior aspect of the bladder neck and the upper part of the prostatic capsule, and this carries the additional advantages of the widening effect of a Y-V plasty and at the same time eliminates a raw surface at the anterior aspect of the bladder neck when the wound is closed. It appears to carry no disadvantages to offset these gains, and there does not appear to be any risk of urinary fistula. It is stressed that a quarter of the patients who present with bladder-neck obstruction have a gland in which there is no proper plane for blind enucleation. With this exposure, such a gland is readily removed piecemeal under full vision, and this means that any type of bladder-neck obstruction encountered on the operating table (including unsuspected carcinoma) can be dealt with in a proper manner.

In conformity with common practice, a wedge is taken from the posterior aspect of the bladder neck; but the mucosa of the trigone is spared, and is utilized to cover the raw surface left by this sphincterotomy, and, finally, bleeding is controlled by what are in fact Harris's lateral stitches, but these are inserted with a clear view of both bladder and prostatic fossa.

Two hundred and sixty-two patients have been operated upon by the technique with seven deaths, an overall mortality rate of 2·7%.

References.

BERRY, N. E., and MILLER, J. (1946), "Regeneration of Epithelium of Prostatic Urethra following Resection", *J. Urol. (Baltimore)*, 56: 223.

BERRY, N. E. (1949), personal communication.

BONNIN, N. J. (1958), "Plastic Reconstruction of Bladder Neck and Prostatectomy", *Aust. N.Z. J. Surg.*, 27: 161.

FITZPATRICK, S. C., and MATHESON, A. D. (1951), "The Scope of Total Prostatectomy", *Aust. N.Z. J. Surg.*, 21: 214.

FLOCKS, R. H. (1938), "Local Repair following Transurethral Prostatic Resection: Its Role in Clinical Events Associated with this Operation", *J. Urol. (Baltimore)*, 40: 209.

HARRIS, S. H. (1934-1935), "Suprapubic Prostatectomy with Closure", *Aust. N.Z. J. Surg.*, 4: 226.

MILLIN, T. (1947), "Retropubic Urinary Surgery", Livingstone, Edinburgh.

HRYNSTCHAK PROSTATECTOMY.[1]

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I PROPOSE to limit my remarks to a consideration of the results of the Hrynstchak prostatectomy according to our experience in Auckland during the past three years. An apology may be appropriate to the introduction of yet another method of prostatectomy; but, as Rolnick (1958) points out, the history of prostatectomy is such that, when an operation has become well established and practised as a routine, a new approach is developed.

[1] Read at the twelfth annual general meeting of the Urological Society of Australasia, Melbourne, March, 1959.

Each operation has advantages which may be adapted to another. For example, the routine use of Harris's hæmostatic stitches applied to Millin's prostatectomy after excision of the wedge of tissue at the bladder neck controls hæmorrhage from the internal division of the prostatic artery at this site.

Despite advances in surgical technique and ancillary services, all operations have their problems, control of hæmorrhage being of most concern. In our experience, the Hrynstchak operation offers a precise method of prostatectomy by which hæmorrhage may be effectively controlled in most cases.

We abandoned Harris's suprapubic prostatectomy for Millin's retropubic operation, which gave good results over a ten-year period. The direct approach gives excellent access for enucleation and subsequent manipulations in the prostatic fossa; but one deliberately transgresses a most vascular region, which is not according to good surgical principles. By this pertinent comment, Miles Griffin first shook my faith in the retropubic operation some years ago.

We have had several cases in which the retropubic operation was considered impossible owing to an hæmangiomatous formation in the prostatic capsule. Also, tedious experiences with very severe capsular hæmorrhage led us to consider reverting to Harris's operation modified by Hrynstchak. We try to carry out the operation without modification of the author's technique, although we do not possess his special bladder retractor. As usual, results improved after the earlier cases. We have found that strict attention to detail at all stages is necessary to ensure good results.

The Present Series.

To date, we have a combined series of about 300 patients operated on by Frank Macky, Howard Gaudin and myself. I do not propose to present a statistical survey, since numbers are too small. The patients were selected as having adenomatous prostates suitable for enucleation. The cases were not otherwise selected.

Mortality.

The mortality rate in this series is between 4% and 5%. In our opinion, there are no special factors in this operation which influence the over-all mortality rate for prostate operations.

Morbidity.

In the routine case, there is minimal disturbance to the patient. The catheter may be removed on the fourth or fifth day after operation. The patient is fit for discharge from hospital at the end of a week, but there is no merit in the speedy discharge of men of this age group unless excellent convalescent facilities are available.

During the first 36 hours after operation there is often bladder and urethral spasm due to perurethral passage of clots from the prostatic fossa. Generally, convalescence is smooth and free from difficulties caused by post-operative bleeding. The nursing staff like the operation.

Discussion.

Access to the Prostatic Bed.

Access to the prostatic fossa for enucleation and subsequent *débridement* and suture hæmostasis is inferior to that obtained by the direct retropubic route. None the less, this is no problem in the average case, an excellent view being obtained with the illuminated bladder retractor. Modern operating theatre lighting usually makes independent lighting unnecessary. After first-stage suprapubic cystotomy scarring makes all manœuvres difficult, and it may be impossible to carry out a planned operation.

Control of Hæmorrhage.

In general, there is good control of bleeding at all stages. Bleeding is not encountered until the actual enucleation, in contrast to the prevesical and capsular bleeding often encountered in the retropubic operation, despite measures to prevent it. Little time elapses before hæmostatic sutures are applied, and over-all blood loss is

usually much less than with other methods. The transfusion rate is significantly lower. Of the last 50 hospital cases, in only four has blood transfusion been needed.

Severe bleeding has been encountered from lateral capsular splits in the retropubic operation. This may be most difficult to control when tissues are friable and hypertrophied vessels exist in this region. With the usual careful enucleation in the suprapubic operation, it is rare to encounter hæmorrhage from this source.

Bleeding from the bladder neck after wedge resection may be controlled by simple Harris sutures or the "Z" modification. Harris was opposed to the "Z" technique, believing that undue tissue sloughing would result, and we have some evidence that this is so. The incidence of secondary hæmorrhage is low in this operation. The Hrynstchak sutures presumably control bleeding from the prostatic bed by tamponade and a direct hæmostatic effect on the capsular tissue. Some hæmorrhage occurs about the catheter per urethram, and reduced intravesical bleeding makes catheter management easier. This is opposed to Harris's views, but no disability seems to arise. The ability of these sutures to close off the bladder neck about the catheter, thus causing the blood lost to pass almost exclusively per urethram, has been amply demonstrated.

Catheter Problems.

This operation is not immune to catheter problems. Although a bag catheter is advised by the author, we find the Harris or "whistletip" type preferable. More than one lateral opening in the catheter makes positioning difficult, since Hrynstchak stitches tend to compress or even occlude the catheter when inadvertently tied over an opening.

The catheter is retained by a silk stitch through the prepuce. Efforts at anchoring the catheter by silkworm-gut stitches through the bladder and abdominal wall have been attended by a high incidence of wound infection and fistula formation, sometimes a problem in the original Harris series. If the catheter comes out immediately after operation, it may be hard to get it back without an anæsthetic. The operation site is best negotiated by a size 20 French Tiemann catheter or a Harris catheter mounted on a curved introducer.

I have been impressed by the low incidence of secondary hæmorrhage in these cases, in contrast to our experiences in the retropubic operation. This is not surprising, considering the vascular area which is transgressed in the retropubic approach.

End Results.

The functional end results of this operation differ in no way from those encountered in other standard procedures.

Complications.

Provided that the bladder is prepared and closed in the correct fashion, the unpleasant complication of suprapubic fistula should not occur. One of my colleagues has such confidence in the purse-string method of closure that he does not employ drainage of the extravesical space after operation. On the other hand, in another series where the author's technique has not been adhered to, there has been a high incidence of prolonged fistula and wound sepsis. In two obese people in whom bleeding could not be controlled by suture hæmostasis, the use of a suprapubic catheter was followed by a fistula.

Complications such as urethral and meatal stricture, osteitis pubis, incontinence of urine and impotence require no special mention, since their incidence is not affected by the technique.

Conclusion.

Preliminary experience in a small series of about 300 cases of Hryntschak prostatectomy has been favourable. The method is precise and offers good control of bleeding. Results are comparable with those of the retropubic method; but bleeding is generally less of a problem. Failure to follow the technique exactly affects results adversely.

References.

ROLNICK, H. C. (1958), *West. J. Surg.*, 6: 329.

HRYNSTCHAK, T. (1955), "Suprapubic Prostatectomy", Thomas, Springfield.

THE SCOPE OF TOTAL PROSTATECTOMY.[1]

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THIS presentation is based on experiences gained in a series of 272 patients surgically treated for prostatic conditions during a ten-year period ending December 31, 1957.

In a previous communication, A. D. Matheson and I (Fitzpatrick and Matheson, 1952) briefly summarized our experiences, first with 51 cases of Millin's retropubic enucleation, and then with 47 cases of retropubic total prostatectomy. At that date we considered that, in comparison with partial removal, radical removal resulted in no increase in mortality or in post-operative complications; that complete control of hæmorrhage was more certain; and that the scope of the operation should include not only all cases in which malignancy was suspected, but also almost all cases in which the tumour was considered suitable for enucleation. In other words, if radical removal is no more dangerous than partial removal, why should not the patient be given the benefit of the former in forestalling the onset of malignant change? On this basis of reasoning, 139 total prostatectomies have been performed in a ten-year period, with a mortality of 3·6%. Two patients died of coronary occlusion, one of pulmonary thrombosis, one of uræmia and one of paralytic ileus within the thirtieth post-operative day limit. No deaths have occurred in the last 89 patients.

It is not possible at this stage to present a statistical analysis of these cases. We consider that a ten-year period from the date of the last operation in the series is necessary before analysing the figures. I realize that the opinions I am about to express will attract severe criticism. I am aware also that the absence of figures to support these opinions will greatly vitiate our arguments. However, it still appears worthwhile to state certain propositions to open this discussion.

In certain non-malignant conditions of the prostate, there is a limited scope for total prostatectomy. Five patients in this series who had advanced chronic prostatitis, two with calculous prostatitis who had been thoroughly treated by accepted conservative measures for adequate periods of time but with no permanent improvement, were managed successfully with radical prostatectomy. Transurethral resection might have given moderately fair results. However, any subtotal operation was likely to fail, because not only would a portion of the chronically infected prostate be left behind, but also the whole of the chronically inflamed vesicles. Only total ablation of the chronically infected prostate and vesicles can ensure success.

In abscess of the prostate, the same conclusion was reached. Four such cases were met with.

One man developed a large carbuncle on the back; three weeks later, acute retention of urine occurred; a hard area in the enlarged right prostatic lobe was considered malignant. Stilbœstrol was administered for four weeks, and then total prostatectomy was carried out. An abscess cavity 2 cm. in diameter with a wall 0·5 cm. thick was found in the right lobe; culture of the pus yielded a growth of *Staphylococcus aureus*.

In recurrent "prostatism" after subtotal removal of the prostate, the residual prostatic tissue sometimes becomes enlarged, and after some years leads to obstruction. This may be benign or malignant. Clinical diagnosis is made more difficult by the scarring from the original operation. Four such cases were met with. In three, recurrent

[1] Read at the twelfth annual general meeting of the Urological Society of Australasia, Melbourne, March, 1959.

prostatism followed seven, eight and ten years respectively after enucleation, and in one, two years after resection. In two cases the recurrence proved to be malignant. One of these was dealt with by total prostatectomy, and the patient is clinically free of metastases four and a half years after operation.

In this series of 272 surgically treated prostatic patients, 38 with cancer of the prostate were treated by radical prostatectomy. During the same ten-year period 21 cases were clinically diagnosed as of prostatic cancer, but because of advanced cardio-renal degeneration, or because of demonstrable metastases, the patients were not subjected to operation. The incidence of cancer in the 293 cases was thus 20%. To carry out radical prostatectomy on 38 of these 59 patients needs explanation.

One factor was the use of œstrogen therapy for at least two months before operation. In earlier cases only a few weeks' administration was commonly used. It has been shown, however, that vacuolation and regression of the primary growth proceed centrifugally for many weeks after the initiation of œstrogen therapy.

Another factor influencing the choice of operation was that, for palliative purposes, in those cases in which the growth had extended outside the capsule of the prostate, but in which no metastases were present, radical removal offered the best insurance against return of obstruction.

In this series of 139 total prostatectomies, 38 patients were proved on biopsy to have cancer, 11 were operated upon for chronic prostatitis, etc., and 90 were so treated with the object of forestalling the onset of malignant change. It may fairly be claimed that 20% of these patients would have developed malignant changes in the prostate later in life. This would mean the prevention of cancer in 18 patients.

To summarize the scope of total prostatectomy, it may be used with the object of cure, palliation or prevention.

1. In our present state of diagnostic ability, only 5% to 10% of prostatic cancers will be suitable for an attempt at cure.

2. The surgical procedure used in palliation will be decided by the needs of the patient and the familiarity of the surgeon with all types of surgical procedures. When the endocrine control of a prostatic cancer is lost, the degree of suffering will be largely conditioned by the extent of urinary obstruction and infection, and our experience is that these sequelæ are least where a radical removal has been carried out.

3. In the prevention of prostatic cancer, we explain to each patient who is found to require surgical intervention for prostatomegaly that there are several types of procedure available, none of them perfect answers to his problem. The advantages and disadvantages having been stated, the patient usually chooses the method which promises freedom from the fear of future malignant change.

Reference.

FITZPATRICK, S. C., and MATHESON, A. D. (1952), "The Scope of Total Prostatectomy", *Aust. N.Z. J. Surg.*, 21: 214.

RETROPUBIC PROSTATECTOMY: AN EVALUATION OF 1200 OPERATIONS.[1]

By MICHAEL SALVARIS, F.R.C.S., F.R.C.S.(Ed.), F.R.A.C.S., *Melbourne.*

TERENCE MILLIN is responsible for the description and the present-day popularity of the retropubic prostatectomy, and although he generously accredits the originality of the approach to Van Stockum of Rotterdam (1909), there is but little similarity between Van Stockum's procedure and that described by Millin himself.

[1] Read in part at the twelfth annual general meeting of the Urological Society of Australasia, Melbourne, March 1 to 5, 1959.

The operations to be described in this paper were performed at St Peter's, St. Paul's and St. Philip's Hospitals, London, in a period extending over ten years. They were carried out by, or under the supervision of, eleven consultant surgeons, and the conclusions are drawn by the writer from this series.

The advantages claimed for the retropubic operation over other open techniques are well known. It is stated that these include a more direct approach to the gland itself, a more adequate exposure, an improved means of hæmostasis, an extravesical approach, a "closed" operation, less shock to the patient, a more comfortable post-operative phase and a shorter stay in hospital. The purpose of this paper is to enumerate certain relevant facts and to discuss conclusions gained from a series of 1200 operations and, further, to stress some hazards and dangers which should be identified without delay and promptly and adequately treated in the interests of the future recovery and subsequent well-being of the patient. The views and opinions are the writer's, and may not necessarily be shared by some of the surgeons who performed this series of operations.

Retropubic prostatectomy has superseded most other operative procedures on the prostate gland in the United Kingdom and has, of recent years, become the operation of choice in most centres.

OPERATIVE PROCEDURE.

The method advocated by Millin (1947) has been largely followed. The skin incision employed was, in the majority of cases, a transverse suprapubic one of the Pfannenstiel type, about one inch above the pubic symphysis; the aponeurosis of the recti abdominis muscles was divided transversely, the muscles were separated in the mid-line, the retropubic space was cleared, and the prostatic capsule and bladder were exposed. Lateral packs as advocated by Millin have been largely discarded.

In nearly every case the prostatic capsule was incised transversely, usually by a scalpel, although diathermy was also employed. Removal of the adenoma was done more by blind enucleation after the urethra had been divided by scissors than under constant direct vision. Lateral sutures for ligation of the branches of the inferior vesical artery were used by some surgeons as a routine, by others only when necessary. Hæmostasis was effected either by diathermy or by ligation, or by a combination of both methods. "Oxycel" gauze or packs or hæmostatic bags or catheters were avoided. Excision of a wedge of the posterior lip of the bladder neck was done as a routine procedure latterly, but was omitted in some of the earlier cases. Urethral drainage was effected by a catheter of the Harris or whistle tip type, and latterly by one of the Porges variety, size No. 20/22 Charrière.

The prostatic capsule was usually sutured, where possible, by a single layer of continuous No. 1 chromicized catgut sutures.

Drainage of the retropubic space was achieved by the use of a corrugated rubber tubing, either through the wound or via a separate stab incision below. In some cases a rubber tube split down one side, or whole, was preferred. Bilateral vasotomy was an accepted procedure in nearly every case, done either at the commencement or at the end of the operation. The urethral catheter was removed on the average on the fifth day and the prevesical drain a day or so later.

INDICATIONS AND SELECTION OF CASES.

The indications for prostatectomy, generally, are valid, in the most part, for the retropubic approach, but it is more important in the latter type of operation to recognize the type of gland with which one is dealing.

In some surgical circles, however, including urological ones, the operation has fallen into some disrepute, or has been largely discarded, and I believe this to be so, not because the operation is a bad one, but because the selection of candidates for the operation has been badly

made, and because the classically described approach and method have always been employed, without any variations of technique for operative findings; the fibrous type of gland is one of the chief offenders.

These operations were carried out in London, where patients with prostatic obstructions are regarded mostly as candidates for open operation.

Among general surgeons, with rare exceptions, this policy is almost invariably adopted, and the classically described operation with enucleation is proceeded with. Now, with the fibrous gland, this is wrong. It is not that one cannot deal adequately with the fibrous gland by the retropubic approach, but to perform the retropubic operation as described with transverse capsular incision and attempted enucleation is going about it the wrong way.

It is not possible to enucleate what is essentially a solid block of unenucleable tough tissue and, worse than that, to try to do it through the prostatic capsule.

The importance of this will be discussed by referring to the pathology.

Fibrous, calculous and malignant glands, even if confirmed only at operation, should be dealt with by variations of technique which have been described elsewhere (Millin, 1947). In the very small and the grossly enlarged glands (in the absence of a distended bladder), a diagnosis of size may approach accuracy, but in those which give the impression of being under 60 grammes (the majority), rectal examinations may be notoriously misleading, and there exists, indeed, a capacity for error, which every experienced and honest surgeon has appreciated, finding to his surprise at operation a small fibrous gland. In this series, glands were on the whole smaller than they had been thought to be pre-operatively.

Assessment of the prostate should include a careful rectal examination in the out-patients' department, a bi-manual palpation under anæsthesia at operation and a thorough cytoscopic evaluation of both bladder and prostate. More informatively, and therefore to be preferred, the prostate should be examined with the panendoscope. At operation, when the bladder and prostate are exposed, the latter must be carefully and critically palpated and its size and consistency assessed —a fact usually accepted, but, surprisingly enough, often overlooked.

Routinely, in nearly all cases, the pre-operative investigations included blood urea examinations, an intravenous urogram, an analysis of the urine, hæmoglobin estimation and blood grouping, and other tests as indicated.

The average age throughout the series was 66 years. The oldest patient operated on was 97 years and the youngest 41 years; 287 patients (17%) were under 60 years of age.

THE PROSTATE GLAND.

The series was almost entirely comprised of white patients. It is of interest that in the few Negroes operated on, the average size of the prostate gland was larger than that of the average white person, and one of the largest (168 grammes) was removed from a Negro. Negroes are more substantially endowed genitally than the white population, and perhaps it is not surprising that their prostates should also be larger, and the writer's personal experience with prostates he has removed in the south of the United States of America would seem to confirm this opinion.

Although there is very little difference in the incidence of hypertrophy between the Negro and the white man in a study of 1000 autopsies by Smith and Jaffe (1932), the average age for hypertrophy was 55 years for whites and 43 years for Negroes. Racial variants are not as a rule significant, but it is curious that in some races, e.g., the Chinese, prostatic hypertrophy is very rare indeed. Roton and Mieng (1937) reported that only one patient was diagnosed as having prostatic hypertrophy and operated on in 20 years in the Cochin Clinic in China, while in a 15 year period at the Peiping Union Medical College, Chang and Char (1936) reported only 84 cases.

The average normal adult prostate gland has been variously estimated at between 16 and 24 grammes in size. The largest gland removed in our series weighed 365 grammes. Dr. Hoyt's case (reported by Bacon, 1949), in which he removed at his first retropubic operation a prostate gland weighing 620 grammes, is interesting to mention. Probably the largest removed by open operation was that reported by Ockerblad (1946), which weighed 820 grammes. He used the suprapubic transvesical method.

In our series, it was surprising how many small abnormal glands were encountered at operation, particularly when it is realized that all these glands had been diagnosed pre-operatively as suitable benign hypertrophic enlargements for retropubic prostatectomy. The average weight of the glands throughout the 1200 patients was 42 grammes: under 50 years the average weight was 19 grammes; 50 to 55 years, 24 grammes; 55 to 60 years, 29 grammes; 60 to 70 years, 42 grammes; 70 to 80 years, 52 grammes; over 80 years, 55 grammes.

PATHOLOGICAL OBSERVATIONS.

In the prostates examined, varying degrees of adenomatous, fibro-muscular and fibrous changes were noted.

It may be of little clinical significance to discriminate between the adenomatous and fibro-muscular elements in a benign hypertrophic gland, but certain pathological variants demand pre-operative respect. Of these variants, the fibrotic (or the predominantly fibrotic) prostate gland is one. The fibrous prostate (and/or prostatic fibrosis) is varyingly known in different countries under numerous descriptive terms and varied clinical nomenclature, which include "contracture of the bladder", "sclerosis of the internal sphincter", "atrophy of the prostate", "median bar", "dysæctasia", "*maladie du col*", and "*prostatisme sans prostate*". Some of the worst types of prostatic obstruction are embraced in this group, for their progress is latent but relentless in its advancement, and they are not uncommonly associated with bladder diverticula. Randall (1931), in his classical work, has differentiated between two types of median bar. The first is a median bar of glandular tissue, which belongs strictly to the subcervical or posterior commissural prostatic hypertrophy. The other type is the true fibrous median bar of the fibrous prostate. This latter is believed to be inflammatory in origin and represents the inflammatory sclerosis or fibrosis from an underlying chronic prostatitis. On cytoscopic examination, this condition is characteristically diagnosed by the finding of a median bar with the verumontanum drawn up and almost abutting on the bar itself, as though the contracting fibrous tissue has approximated the two. In Randall's classical work in a large series of autopsies, the relative frequency of the fibrous type was 20·5% to the 79·5% of the hypertrophic type. In our series, the following findings were obtained (Table I).

LENGTH OF STAY IN HOSPITAL.

The average duration of the stay in hospital for the entire series was 18 days, although in the last five years the figure was lower.

PRE-OPERATIVE REFLECTIONS.

The problems of geriatrics generally are an almost invariable concomitant of prostatic disease. The surgery of the prostate is the surgery of declining man. It is often the surgery of tissues weak in architecture, unstable in response to trauma and sluggish in recovery. A careful appraisal of this unpromising material is mandatory, and ideally, all patients undergoing prostatic operations should be assessed carefully, because their margin of safety may be a very small one with reference to what they can withstand at operation. As will be shown, many deaths in this series could be directly attributed to blood loss and/or shock. Elderly patients, particularly those who are in the weak or debilitated condition often seen in progressive prostatic disease, may be in a state of contracted blood volume (Beling *et alii*,

1952; Bosch *et alii*, 1952; Ziffren, 1953). Their hæmoglobin and hæmatocrit readings may be misleading, and additional blood loss associated with shock, either at or following operation, may tip the scales against their recovery. Because of the difference in response between age and youth to blood loss and stress—the difference being illustrated by the frequency of the complications (and causes of death) of coronary thrombosis, cardiovascular sequelæ, cerebrovascular sequelæ, cerebrovascular accidents and renal failure in the aged and their comparative rarity in young people as a result of operation—it is imperative to restore blood volume prior to operation and to replace blood loss promptly during operation. Furthermore, those with a higher blood pressure (and the average blood pressure reading in these 1200 patients was 172/97 mm. of mercury) do not tolerate sustained hypotension—this latter often being a prophetic forerunner of the complications listed above.

TABLE I.
Pathological Conditions Found at Autopsy.

Pathological Condition.	Number of Patients.	Percentage.
Fibrous prostate	180	15·0
Malignant disease	84	7·0
Acute inflammations (including abscesses, focal and general)	44	3·9
Tuberculosis	4 (2 doubtful)	0·3

Although many tests of kidney function are available, most reliance was placed on blood urea estimations and on intravenous urograms. Analysis of blood electrolytes was carried out where this was indicated. A blood urea level of under 50 mg. per 100 ml. was usually regarded as an indication of adequate kidney function. When a patient was considered a poor risk, particularly when renal function was considered inadequate, a two-stage operation was performed, comprising a suprapubic cystotomy as a first stage and a retropubic prostatectomy when the patient's condition merited it. Approximately 6% of the operations in this series were carried out as two-stage operations. A plea is made for this two-stage procedure, for it is not performed nearly often enough. It can save many lives, and should not be relegated to the limbo of the past or be regarded as a reflection on one's surgical prestige or skill, but rather as a measure of one's clinical acumen. The change in a patient's general condition after a long period with a suprapubic cystostomy can sometimes be truly remarkable, and what may originally have been a poor risk can be a very good one several months later. It is a clinical fact that the high blood urea level occurring in many patients, particularly those presenting with acute retention, may fall to within normal limits in a matter of several days with urethral drainage, but prolonged urethral drainage is not a recommended procedure, for it is almost impossible to maintain sterility in the presence of a urethral catheter. One may argue that sterility is no better maintained by a suprapubic tube, but our series has shown that patients do better after prolonged suprapubic drainage than after urethral drainage, even for a much shorter time. Pre-operative infection in retropubic prostatectomy increases the morbidity, and a pre-operative catheterization of more than 48 hours provides a greater tendency to complications. The urine of these 1200 patients was examined pre-operatively either from catheter or from mid-stream specimens; 749 patients (60%) were reported as having sterile urine prior to operation.

The urine of 492 patients (41%) was examined post-operatively, and not one specimen was reported as sterile. Although it must be emphasized that the urine of these patients was examined because of some interruption in their post-operative convalescence, nevertheless, sometimes it was examined as a routine. Usually more than three months had to elapse before the urine became sterile. The conclusion to be drawn from this series is that every urine after prostatectomy is infected, and this despite the use of sulphonamides and antibiotics in over 65% of all cases both pre-operatively and post-operatively. The inference is, therefore, that no sulphonamide or antibiotic will usually render urine sterile after prostatectomy, and certainly not until sloughs have been discharged and raw areas completely epithelialized, probably not less than three to four months after operation. The role of post-operative hæmorrhage will be discussed, but it is fitting to emphasize at this stage that blood can provide a natural medium for the luxuriant growth and multiplication of bacteria, and it is just as likely, if not more so, that hæmorrhage provokes infection rather than that infection provokes hæmorrhage.

MORTALITY AND ACUTE RETENTION OF URINE.

There were 50 operative deaths—an over-all mortality of 4·2% (Table II). These patients were unselected. Over 90% were of patients in public hospitals.

It can be seen from Table II that the mortality rate in patients presenting with acute urinary retention is nearly four times as high as in those who do not.

TABLE II.
Mortality and Acute Retention.

Condition.	Number of Patients.	Number of Deaths.	Mortality. (Percentage.)
Acute retention	307 (25%)	28	9·1
No acute retention ..	893 (75%)	22	2·4

In a critical scrutiny of this series, there was no apparent difference in the clinical state or the findings in laboratory investigations between those in acute retention and those in whom this was not a presenting symptom at the time of operation, but in the former group of patients a catheter had been inserted, usually for several days whilst investigations were being performed. In spite of antibiotic cover during this period, subsequent analysis of the urine prior to operation showed bacterial infection in all cases, although in many the urine had been sterile on first analysis, and furthermore, some patients whose urine had previously grown one type of bacterium now showed mixed infection. The presence of an indwelling catheter with its inevitable irritation and infection may well be a contributing factor to the increased mortality. One wonders what difference mortality figures may have shown had operation been performed immediately, without preliminary catheterization whilst awaiting investigation. Are preliminary catheterization and investigation merited if one considers the fact that during this delaying period pre-operative urinary infection will occur? Again, one may wonder, since post-operative infection occurs in all cases, why pre-operative infection should contribute as largely as it seems to do to increased mortality. That it does so is strongly suggested by this series, and one cannot exclude the manipulative efforts of the surgeon during operation as playing an active and substantial part in the dissemination of an infection already preexisting. The Wilson Hey (1945) prostatectomy embraced the principles of rigid pre-operative and operative asepsis, and pre-operative catheterization was scrupulously avoided for this very reason.

THE YOUNG PROSTATE.

Patients under 55 years of age should be viewed with suspicion and should be assessed carefully prior to embarking on a retropubic prostatectomy or for that matter any open prostatectomy. Our series showed that this age group provided many of the problems, including diagnostic, operative and post-operative ones.

There were 70 patients under 55 years of age, and of these only 25 proceeded to a normal uninterrupted convalescence, and even this despite some unexpected findings at operation. It was in this group that the inflammations predominated. In 31 cases the prostate weighed less than 20 grammes, and in 26 of the 31 it weighed less than 15 grammes. Small obstructing prostates are often predominantly fibrous prostates, and these latter represent the scars left by repeated inflammatory attacks. Chronic prostatitis was an almost constant finding.

In this group of 70 patients, there were 24 patients with fibrous prostates, four with malignant disease of the prostate and three with acute prostatitis.

The following complications occurred: (*a*) hæmorrhage, which was moderately severe in 45 cases and severe in 15; (*b*) strictures (urethral and bladder neck), which occurred in 10 cases.

Wound infections, suprapubic leakage of urine and longer stay in hospital were more in evidence.

Table III shows the relationship between age and mortality.

TABLE III.
Age and Mortality.

Age Group.	Number of Patients.	Number of Deaths.	Mortality. (Percentage.)
80 years and over ..	55	13	24·0
75 years and over ..	216	23	10·6
70 years and over ..	436	36	8·2
Under 70 years	764	14	1·8

APPRAISALS AND OBSERVATIONS OF MORTALITY RATE.

The listed primary causes of operative deaths—of which 50% were confirmed at autopsy—were as follows.

1. Diseases of the heart: (*a*) cardiac failure (nine deaths), (*b*) coronary disease (seven deaths), (*c*) circulatory collapse or failure (three deaths).

2. Diseases of the lungs: (*a*) bronchopneumonia (eight deaths), (*b*) pulmonary embolus (three deaths), (*c*) massive lung collapse (one death).

3. Diseases of the kidney including pyelonephritic changes: (*a*) uræmia (seven deaths), (*b*) anuria (one death).

4. Cerebrovascular diseases—hæmorrhage and thrombosis (six deaths).

5. Abscess and toxæmia: (*a*) paravesical and retropubic abscesses (two deaths), (*b*) peritonitis following perforation of the abscess (three deaths).

6. Perforated peptic ulcer and associated massive hæmorrhage (one death).

The above-mentioned causes of death may appear no different from what one would expect in a geriatric ward, but when one examines closely the history of the patient prior to death, certain interesting facts are revealed. The average interval between operation and death was eight days; four patients never regained consciousness and died in a matter of hours after surgery.

The following is an analysis of the 50 deaths recorded in this series.

1. Twenty-nine deaths, irrespective of the listed primary cause of death, were preceded by severe hæmorrhage—primary, reactionary or secondary—associated with clot retention, and most of the patients were given blood transfusions.

As will be shown, there were 97 recorded cases of severe hæmorrhage—primary, reactionary or secondary—in the 1200 cases. Thus it will be seen that of the 97 patients who suffered with substantial bleeding and clot retention, 29 of them subsequently died—that is, rather more than one in every four patients who bled severely subsequently died.

2. Six deaths occurred of patients with a systolic blood pressure of over 200 mm. of mercury, and records, although not complete in all cases, showed that four deaths were associated with sustained hypotension, shock and severe prostration, usually commencing during the operation.

3. Four deaths occurred of patients in whom brisk hæmorrhage took place at operation with marked falls in blood pressures, and all four patients were drowsy, disorientated and confused after operation; three of them showed paralytic changes of varying degrees, and died subsequently from cerebrovascular thrombosis or hæmorrhage (confirmed at autopsy). The other patient collapsed during the operation (probably with cardiac arrest), and was resuscitated over a period of three hours, but died 12 hours after completion of the operation, not having regained consciousness. This patient was an asthmatic, and death was ascribed to circulatory failure. Autopsy revealed no specific cause of death.

4. In the remaining 11 fatal cases, one patient died suddenly 24 hours after operation, and post-mortem examination showed a calcified occluded coronary artery. One patient died of a cerebrovascular accident on the eleventh post-operative day. Two patients died of chest complications on the second day and sixth days respectively, and there was a comment of shock occurring in both cases at operation. One patient died at stool suddenly on the eighth day; no post-mortem examination was performed, but death was believed to be due to pulmonary embolism. One other patient collapsed at stool and died 48 hours later; no autopsy was performed, but clinically death was considered to be due to coronary occlusion. One patient died after rupture of a paravesical abscess into the peritoneal cavity; death followed a sudden episode of rigors and pain, toxæmia and shock apparently being responsible for his demise. One patient died from peritonitis, this being the result (subsequently proven) of a Riches' stab cystotomy done prior to operation, which had penetrated the peritoneum and the bowel. One patient died of a perforated ulcer, which had eroded into a large vessel giving rise to massive hæmorrhage. Two patients who died from bronchopneumonia were debilitated men, both of whom were noted as having been shocked during operation and to have suffered unusually high blood loss. One gland was the site of malignant disease, and secondary growths were found at post-mortem examination.

Over 80% of the patients who died suffered from some marked degree of circulatory failure with or without severe blood loss, and this often occurred despite all attempts at resuscitation and correction. The dangerous effects of blood loss develop as a result of (*a*) the diminution of blood volume, and (*b*) the rate at which this diminution occurs.

Blood or other intravenous fluids should be given immediately blood loss occurs in the operating room, and not at the end of the operation or after the patient is returned to the ward. Ideally, an intravenous drip infusion, with blood available, should be used for all patients undergoing prostatectomy. Sustained hypotension associated with shock and blood loss in old patients is a very real hazard indeed. Blood or fluid replacement should be made if the blood pressure falls by 25 mm. of mercury, and the pressure should be maintained, if need be, with the aid also of pressor drugs.

Millin (1954), with reference to post-operative bleeding, states that in his series and that of his associates (2000 cases), only two patients—and those were among his early patients—were returned to the operating room for this complication. Both were patients with extreme hypertension, in whom excessive blood loss through the stab wound during the first twelve hours betokened bleeding into the retropubic space. Reopening the wound in each instance revealed capsular vessel hæmorrhage. In one case the vessel was under-run with a suture; in the other packing was employed. In no case had the bladder to be opened for intravesical hæmorrhage.

Referring to secondary hæmorrhage, Millin (1947) states "that in general it can be treated by insertion of a urethral catheter through which the clots are evacuated combined with blood transfusion, if necessary. In a single case, the

393rd case, we had to perform a suprapubic cystotomy; this latter patient proceeded to five subsequent hæmorrhages but eventually made a good recovery".

How much blood is lost as the result of retropubic prostatectomy? Millin (1947) states that in a series in which accurate blood loss estimations were made, the average loss was 200 ml. during the operation. He colourfully describes the loss after operation as follows: "The urinary drainage is usually heavily blood-stained for 24 to 36 hours, gradually lightening in colour. In the average case the drainage resembles Burgundy the day succeeding the operation, Vin Rose the following day and on the third morning Sherry." Now this is in the average and in the presumably ideal case and in Millin's hands. Goodyear and Beard (1949) have given their figures of blood loss in retropubic prostatectomy after careful estimations as 600 ml., with prostates averaging 50 grammes in weight. Nesbit and Conger (1941) have stated that in transurethral resections twice as much blood may be lost after operation as during operation. From Millin's description of the post-operative blood loss, this may well amount to twice as much as is usually lost at operation. In our series no careful estimations were made, but as an experiment in 30 cases—admittedly a very small percentage of the total number—the hæmoglobin value was estimated prior to operation and seven days later when bleeding had ceased, and an average fall of 12% was recorded. This is a rough estimation and not a reliable method for accurate results, but could suggest a loss of approximately 1000 ml. of blood during and after operation. These 30 cases were all relatively uncomplicated, but in cases in which bleeding is prolonged, the margin of safety may be very precarious.

COMPLICATIONS OF RETROPUBIC PROSTATECTOMY.

Immediate Complications.

Hæmorrhage.

Hæmorrhage has been largely dealt with. Of 97 patients (8%) who suffered substantial loss of blood, nearly all were given blood transfusions. Many of these patients suffered from subsequent infections, both local and generalized. Infected wounds, local abscesses and pyelonephritis were among the commoner sequelæ. Bleeding and clot retention were largely dealt with by syringing via the urethral catheter. Five patients (0·4%) were returned to the operating room, and bleeding was arrested by ligature, diathermy or packing.

Infection.

1. Wound infections with or without abscess formation were recorded in 115 cases (10%). Many of these were associated with suprapubic leakage of urine, and by far the greater percentage occurred in patients presenting in acute retention, whose bladders had been catheterized some days prior to operation. Wound infections were more common in the obese patient. The organisms concerned were mostly *Bacterium coli*, *Proteus vulgaris* and *Pseudomonas pyocyanea*; the last two were often introduced by instrumentation or cross infection in the wards. Sensitivity tests for the organisms responsible were usually done and the appropriate drug was provided. Although some of these infections continued for several weeks, many were healed by the time of the patient's discharge from hospital. Moore (1947) states that every wound in the operation of retropubic prostatectomy should be considered potentially contaminated by infected urine, and therefore before closing, repeated and thorough irrigation with sterile saline solution will dilute and minimize this contamination. If to this is added the local use of a solution (1 in 400) of a broad-spectrum antibiotic such as neomycin, wound infections rarely occur. Moore uses his method as a routine after observations originally made on osteitis pubis, and states that he has been successful in reducing wound infections to an almost negligible degree as compared with what he had formerly experienced without its use.

2. Urethritis and meatitis were not uncommon, but usually subsided after withdrawal of the catheter. These complications were not carefully recorded in all cases, and they may account for some of the strictures noted later.

3. Chills and pyrexial bouts were seen occasionally with removal of the catheter, and are probably explained by a transient bacteriæmia. They were rarely of any serious moment.

4. Pyelonephritis occurred in some cases, but it is difficult to assess this condition. It is probably a not uncommon accompaniment of prostatic operations in some degree or other, and in most autopsies on patients who have died after prostatectomy, some evidence of pyelonephritis can be found. Rees (1947) reported pyelonephritis as a cause of death in 60% of 88 deaths which followed prostatectomy.

5. Of 40 patients (3%), 28 were diagnosed as having epididymitis and 12 epididymo-orchitis. Bilateral vasotomy was carried out in most cases, but was not always recorded in the operative notes, so a statistical survey was unreliable in determining whether or not the ligation of the vas deterred this type of infection. In a small series of 30 cases, the vas was tied on one side only as an experimental procedure and epididymitis occurred in two cases, in both on the unligated side. The general trend of opinion seems to be that such ligation helps to prevent the occurrence of this condition, and in our group of hospitals bilateral vasotomy was performed as a routine procedure. It must be conceded as possible that the site of entry of the infection which gives rise to epididymitis may be where the vas is divided during the vasotomy, especially if this is performed at the end of the retropubic operation.

Suprapubic Leakage of Urine.

Leakage either through the wound or through the stab incision providing drainage was observed in 105 cases (9%). Predisposing causes of this condition included tearing of the prostatic capsule so that accurate approximation was impossible. It was also more common where preoperative catheter drainage had been employed—for the more obese individual and in the older age group. It is of interest to note that in some cases in which the capsule had been badly torn during enucleation and approximation was hardly at all possible, no suprapubic fistula occurred after operation at any stage. The atonic bladder was also a more persistent offender in this group. In the majority of cases the urinary leakage persisted for a few days only, and usually cleared up if a catheter was reintroduced for a further few days. The longest episode of leakage was 62 days, although in this case no obstructive cause could be found, and it persisted despite all forms of treatment.

Incontinence of Urine.

Temporary incontinence lasting from one to three weeks, but sometimes as long as six months, was noted in 16 cases (1%), and although some transient weakness may have remained in some of these cases, satisfactory control resulted. Three patients were permanently incontinent, and of these one had a proven carcinoma of the prostate. One was subsequently operated on and became continent. The third man has remained incontinent and wears a penile clamp.

General Complications.

The following are some of the complications which occurred.

1. Pulmonary complications, including bronchitis, pneumonia, atelectasis and pulmonary embolism, occurred in 84 cases (7%).

2. Cardiac complications, including congestive cardiac failure, coronary occlusion and auricular fibrillation, occurred in 48 cases (4%).

3. Gastro-intestinal complications, hæmatemesis and melæna were noted in a surprisingly high number of cases—14 (1%)—although nine of these patients had a previous history of proven peptic ulcer or gastro-duodenal hæmorrhage. Post-operative ileus of a mild nature and of short duration was not uncommonly noted. One patient developed a subacute intestinal obstruction.

4. Thrombosis and thrombo-phlebitis were observed in 22 cases.

Post-Operative Urinary Retention.

Some patients were unable to pass urine when the catheter was removed, and in the absence of frank obstruction or bladder atony, replacement of the catheter for a further day or two sufficed. The patient with an atonic bladder constituted a difficult problem, and here the catheter was usually left in the bladder for two to three weeks and often for a longer time. In some of these cases the amount of residual urine remained large after operation, occasionally for months, and interval catheterization had sometimes to be performed.

Later Complications.

Osteitis Pubis.

In our series osteitis pubis was diagnosed and confirmed radiologically in nine cases. Milder cases may have occurred, but no radiological proof existed. Osteitis pubis is a peculiarly male disease, despite the many pelvic operations that are performed on the female. It is an inflammatory disease of the os pubis, commencing in the region of the symphysis, and spreading to involve the pubic bones and even ischia. It begins firstly as periostitis, and in its progress may establish itself as osteomyelitis. Boyd (1947) states that it is a mistake to draw a distinction between osteitis and osteomyelitis. Beneventi (1954) mentions that the disease was first reported by John Hunter in 1761, and many others in the last century have reported cases of which all were, at that time, diagnosed at autopsy. No satisfactory explanation as to its ætiology has been provided. In our series, the attacks of pain were noted first by the patient at between the third and sixth weeks and all were self-limiting between the third and ninth months. In four of the nine cases the disease was associated with marked local infection. No treatment appeared to arrest adequately the progress of the disease. Retropubic prostatectomy has been cited as the whipping-boy for this disease, although it is agreed by many authors that it does occur in other forms of prostatic and bladder surgery. Although osteitis pubis is both a crippling and an excruciatingly painful disease in its severer forms, its occurrence is so infrequent, in our series, that it does not constitute sufficient grounds for consideration of alternative procedures when the retropubic operation is indicated.

Stricture — Meatal and Urethral.

It is difficult to assess the number of strictures, because it is only those which are severe enough to cause the patient to complain that are brought to the urologist's attention, and few urologists examine the meatus as a routine. There were 14 meatal and urethral strictures (a total of 1%), but many more of varying degrees of severity may have occurred. The larger catheter, because of the pressure which it exerts, and the looser small one, because of its movement, have both been blamed for urethral inflammations. Johnston (1953), in a study of a series of post-prostatectomy strictures, estimated the diameter of the intrameatal region from 6·5 mm. (approximately size 19 Charrière) to 11 mm. (33 Charrière), the greater number of strictures occurring in the narrow urethras. The interesting observation he made was that in all cases in which the calibre was less than 8 mm. (24 Charrière), strictures developed, while when the diameter was greater than 9 mm. (27 Charrière), they did not. He stated also that the length of the stay of the catheter within the urethra had little to do with stricture formation. It would appear that a meatal stricture is the result of a sore or ulcer produced by a disparity between the catheter and the urethra just within the meatus. Sandrey (1948) has advocated the use of a perineal urethrostomy, and this would appear to be a sound procedure that can be strongly recommended in the narrow urethra in which one anticipates that a stricture may develop.

Bladder Neck Obstruction.

Seventeen cases (1·4%) were diagnosed as bladder neck obstruction following retropubic prostatectomy, and further treatment was required—either dilatation with sounds or transurethral resection. Post-operative cystoscopy was not done routinely. Accurate assessment of this complication cannot be provided; only those patients who reported symptoms of obstruction are enumerated. This condition is by no means peculiar to retropubic prostatectomy; it is probably no less common in other forms of prostatectomy. Millin (1942) has described two varieties of stenosis: (i) membranous, which is caused by remnants of the vesical mucous membrane uniting across the prostate cavity, and aggravated, if not precipitated, by delayed micturition; (ii) cicatrization, which is due to trauma of the trigonal muscle, which allowed the opposing circular muscles at the bladder neck to dominate in their action, thus closing off the vesical outlet unopposed by the trigonal musculature. This was believed to end in fibrosis and shelf formation at the vesical outlet. Wedge resection of the prostatic lip of the bladder is the accepted procedure for the prevention of this stenosis. Wells (1952) has advocated the Wilson Hey procedure, in which incision is at nine or three o'clock of the bladder neck, and believes this to be the better method.

In our series, stenosis mostly occurred (at least 65%) in those cases in which the bladder neck was not resected. Resection of the bladder neck is usually done at an inconvenient time during the operation, shortly after enucleation when bleeding may be a little brisk and exposure not all that it might be. Therefore, it may be done hurriedly and incompletely. A wedge-shaped excision implies one which has a "V" shape, and if the "V" is made at too acute an angle, and if the apex of the "V" is not flush with the trigone and the prostatic floor, it may be inadequate because the prostatic fossa contracts to 50% of its former size after enucleation. Within the first six to twelve hours after operation, the cavity shrinks by another 25% and then gradually to completion (Goodyear, 1949). The bladder neck with the prostatic cavity must to some extent shrink also, and there is much more reason to expect the unepithelialized opposing surface of a narrow "V" to unite than to stay separated, and it may well be that the inadequate excision is taken from the bladder neck. It might be better to perform and to refer to a semilunar rather than to a wedge excision, for the former would imply a wider and more thorough excision.

SUMMARY.

Twelve hundred cases of retropubic prostatectomy are considered. The advantages and principles of the operative procedures are outlined.

The importance of careful assessment of the size and pathological condition of the prostate gland is emphasized with reference to the subsequent performance of this operation.

The causes of death after operation are given, and an attempt is made to correlate the significant features which may have precipitated these causes, and to show how these may be avoided or their effects reduced in severity.

The complications of retropubic prostatectomy, both immediate and delayed, are listed and discussed.

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REFERENCES.

BACON, S. K. (1949), "Retropubic Prostatectomy: Early Technical Difficulties, Report of Removal of Giant Prostate", *J. Urol. (Baltimore)*, 61: 571.

BELING, C., BOSCH, D. T., and CARTER, O. B., JR. (1952), "Symposium on Geriatric Surgery: Blood Volume in Geriatric Surgery", *Geriatrics*, 7: 179.

BENEVENTI, F. A. (1945), "Retropubic Prostatectomy", Thomas, Illinois.

BOSCH, D. T., ISLAMI, A., TAN, C. T. C., and BELING, C. A. (1952), "The Elderly Surgical Patient", *A.M.A. Arch. Surg.*, 64: 269.

BOYD, W. (1947), "Surgical Pathology", Saunders, Philadelphia.

CHANG, H. L., and CHAR, G. Y. (1936), quoted in Beneventi, F. A. (1945), *loco citato*.

GOODYEAR, W. E., and BEARD, D. E. (1949), "Blood Loss in Prostatectomy", *J. Urol. (Baltimore)*, *62*: 849.

HEY, W. H. (1945), "Asepsis in Prostatectomy", *Brit. J. Surg.*, 34: 41.

JOHNSTON, J. H. (1953), "Postmeatal Urethral Stricture following Prostatectomy", *Brit. J. Urol.*, 25: 155.

MILLIN, T. (1942), "Post-Prostatectomy Obstruction", *Brit. J. Urol.*, 14: 113.

MILLIN, T. (1945), "Retropubic Prostatectomy: A New Extravesical Technique", *Lancet*, 2: 693.

MILLIN, T. (1947), "Retropubic Urinary Surgery", Livingstone, Edinburgh.

MILLIN, T. (1954), in "Urology", edited by Campbell, M., Saunders, Philadelphia and London, 3: 2054.

MOORE, T. D. (1957), personal communication.

NESBIT, R. M., and CONGER, K. B. (1941), "Studies of Blood Loss during Transurethral Prostatic Resection", *J. Urol. (Baltimore)*, 46: 713.

OCKERBLAD, N. F. (1946), "Giant Prostate: The Largest Recorded", *J. Urol. (Baltimore)*, 56: 81.

RANDALL, A. (1931), "Surgical Pathology of Prostatic Obstructions", Williams & Wilkins, Baltimore.

REES, W. S. (1947), "Causes of Death in Senile Benign Prostatic Obstruction. A Survey of 643 Cases", *Brit. J. Urol.*, 19: 83.

ROTON and MIENG (1937), quoted in Beneventi, F. A. (1945), *loco citato*.

SANDREY, J. G. (1948), "Urethrostomy Drainage of the Bladder", *Proc. roy. Soc. Med.*, 41: 777.

SMITH, K. J., and JAFFE, R. H. (1932), "Comparative Frequency of Prostatic Hypertrophy in White and Colored Races", *Urol. cutan. Rev.*, 36: 661.

TEEM, M. V. B. (1932), "The Relation of the Interstitial Cells of the Testis to Prostatic Hypertrophy", *Brit. J. Urol.*, 34: 692.

VAN STOCKUM, W. J. (1909), quoted in Millin, T. (1947), *loco citato*.

WELLS, C. (1952), "Prostatectomy. A Method and its Management", Livingstone, Edinburgh.

SOME ASPECTS OF CARCINOMA OF THE PROSTATE.[1]

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I WISH to present to you some of the less common complications of carcinoma of the prostate.

The first of these is the development of paraplegia. I cannot help feeling that this complication occurs more commonly than would appear from a review of the literature. However, the underlying pathological lesion that I will describe is not mentioned in any of the common textbooks on pathology, such as that of Willis or Anderson. Nor is the clinical sequel mentioned in the standard urological textbooks of reference, such as those of Young, Campbell, Hinman, etc.

I should make it clear that the paralysis is of the upper motor neuron type, with hyperreflexia, extensor plantar response and rigidity. This can follow collapse of a vertebral body and angulation of the spine, but in the cases described either there has been no vetrebral collapse or, if it has occurred, subsequent investigation has shown that the site of the lesion has been at a different level and the paralysis due to pressure of an extradural plaque of malignant tissue.

Kawaichi and Rider found only seven reported cases in 1951, and added one of their own—that of a man, aged 54 years, who, two years after the diagnosis of carcinoma of the prostate had been made, developed paraplegia and was subjected to laminectomy. The report of their operative findings is vague. They describe an area of definite pressure on the spinal cord, which was found at the sixth thoracic level and caused by an infiltrative lesion producing a constricting area at this level. However, it does seem to correspond to the extradural plaque of malignant tissue found in our cases, of which there have been four.

The first case was that of a man, aged 72 years, who two years previously had had a suprapubic prostatectomy performed, of which no details are available. Approximately two months before his admission to hosiptal he developed complete paraplegia over a period of a few days.

On examination, the patient was found to have an enlargement of the prostate, described as hard, but not classically malignant. The serum acid phosphatase level was 79 King-Armstrong units; it subsequently fell to 39 units with stilbœstrol therapy, and X-ray examination revealed multiple osseous secondary deposits, some osteoblastic, some osteolytic. There were no urinary symptoms at the time of the development of the neurological signs.

Laminectomy was performed, and at operation a mass of secondary carcinoma was found lying in an extradural position and compressing the cord between the third and sixth thoracic levels. Histological examination of sections revealed "secondary carcinoma consistent with a primary lesion in the prostate". After operation there was some return in sensation, but none in motor power—a state of affairs undoubtedly due, in no small measure, to the length of time for which the paraplegia had been present before operation, namely, approximately two months.

The second case was that of a man, aged 74 years, who first presented himself in February, 1953, with chronic retention of urine. On clinical examination at this time he was found to have a carcinoma of the prostate. There were multiple osseous secondary deposits in the spine and pelvis. The serum acid phosphatase level was two King-Armstrong units. Normal micturition was resumed after the institution of stilbœstrol therapy, and he was discharged from hospital.

He was readmitted in October, 1955—that is, two and a half years later—complaining of weakness of the legs progressing to paralysis. He had, all this time, been maintained on stilbœstrol in a dosage of 5 mg. per day. On examination, he had a paraplegia with a sensory level at the seventh thoracic segment. The serum acid phosphatase level was two King-Armstrong units. His condition gradually deteriorated, and he died a month later without operation. At autopsy, multiple gland and osseous secondary deposits were present, and a mass of malignant tissue situated extradurally was found to be ringing and compressing the cord at the sixth thoracic level. Histological examination of sections confirmed the presence of carcinoma of the prostate.

The third case illustrates another feature of the condition.

This patient, aged 63 years, presented with paraplegia as the first indication of his disease. It progressed rapidly over three days until it was complete and was associated with severe flexor spasms of the lower limbs. He had noted nocturia, passing urine three times at night, for some months previously. The prostatic tumour was described as grade III, hard, fixed and nodular, and a clinical diagnosis of carcinoma of the prostate was made. The serum acid phosphatase level was five King-Armstrong units. X-ray films of the lumbar part of the spine and pelvis showed no secondary deposits. The presence of a spinal block was confirmed by a myelogram. Laminectomy was performed forthwith. An extradural plaque was found extending from the seventh cervical to the first thoracic level; it could be only incompletely removed.

Another point of interest in this case is the fact that, at operation, the marrow of the first and second thoracic vertebræ was found infiltrated with tumour, although the pre-operative and subsequently the post-operative films failed to disclose any sign of secondary deposits. Histological examination of sections of the tissue removed from the extradural space showed a poorly differentiated tumour consistent with a primary growth in the prostate. Operation was followed by slow recovery of motor power and return of sensation. This patient died two years after laminectomy from leuco-erythroblastic anæmia, due to secondary infiltration of the marrow.

The fourth patient was aged 73 years. He presented similar clinical features, namely: (i) rapidly developing paraplegia; (ii) virtual absence of obstructive or irritative urinary symptoms; (iii) a carcinoma of the prostate diagnosed on rectal examination; (iv) elevation of the serum acid phosphatase level to 13 King-Armstrong units; (v) radiological evidence of secondary deposits in the lumbar vertebræ; (vi) spinal block in the mid-thoracic region; (vii) at laminectomy, the finding of an extradural plaque of

[1] Read at the twelfth annual general meeting of the Urological Society of Australasia, Melbourne, March, 1959.

malignant tissue. No improvement followed operation, and when the patient subsequently came to autopsy, the presence of an infiltrating carcinoma of the prostate was confirmed. The findings on histological examination of sections of this corresponded with those from sections obtained from the tissue in the extradural space.

I present now for your comparison, and to illustrate the differential diagnosis, the case of a man, aged 60 years, who was examined in November, 1957, suffering from acute retention of urine. On clinical grounds a carcinoma seemed possible, but a trial of stilbœstrol failed, and subsequently a transurethral resection was performed. The histological examination of sections of the tissue obtained at operation showed no evidence of carcinoma; benign hyperplasia only was to be seen.

This patient returned in May, 1958, with paraplegia. On rectal examination at this time, the prostate was described as nodular and firm, but not hard. The serum acid phosphatase level, however, on several estimations, varied from 32 to 13·5 King-Armstrong units. There were osteolytic and osteoblastic deposits in the ischium, lumbar vertebræ and dorsal vertebræ.

An urgent laminectomy disclosed a compressing extradural secondary deposit at the fifth thoracic level. Histological examination of sections of this showed a papillary carcinoma, not suggestive of prostatic origin.

Operation was followed by gradual deterioration and death two months later. Post-mortem examination confirmed that the prostatic tumour was benign; but two small malignant ulcers were found in the juxtapyloric area of the stomach. You will remember that the serum acid phosphatase levels—namely, 32 to 13·5 King-Armstrong units—are figures well above what are commonly regarded as values diagnostic of prostatic carcinoma.

A slightly different problem is that of a man, aged 44 years, who presented in 1955 complaining of a swelling of the penis and scrotum which had been gradually developing over the previous three weeks. There had been no pain and no urinary symptoms.

On examination of the patient, pitting œdema of the suprapubic region, penis, scrotum, thighs and ankles was to be found. The prostatic enlargement was grade I, firm and slightly irregular, and was thought to be possibly malignant. However, there was no response to stilbœstrol therapy, and approximately a month later the patient was admitted to hospital for investigation. Shortly after his admission he complained of weakness and numbness of the legs, which progressed over 48 hours to complete paralysis with a sensory level at the umbilicus. Myelographic examination and lumbar puncture confirmed the presence of a spinal block.

At laminectomy a cuff of gelatinous grey tissue in the extrathecal space at the eighth thoracic level was found. A macroscopic diagnosis of reticulosis was made.

The patient's condition gradually deteriorated after operation, and death followed approximately a month later. Histological examination of sections of the tissue showed lymphosarcoma, and at autopsy, multiple areas of the body were found to be involved by this process. In the œsophagus multiple submucous nodules were present. There was lymphosarcomatous infiltration in the region of the ileo-caecal valve and extensively throughout the large bowel. The sigmoid colon and rectum were incorporated in and heavily infiltrated with neoplastic tissue, which attached them to the bladder anteriorly and to the pelvic walls posteriorly and laterally. The bladder and prostate were in the middle of this mass. The skin of the scrotum and abdominal wall was infiltrated and ulcerated. The mediastinal glands and the aortic chain were grossly involved. The extradural space, from the lower cervical region to the cauda equina, was filled with a greyish-pink, gelatinous, fleshy material compressing the cord throughout its length. Further histological studies confirmed the diagnosis of lymphosarcoma.

The principles underlying the management of this complication of carcinoma of the prostate would seem to be as follows. Should it develop whilst the patient is receiving œstrogen therapy, laminectomy is indicated without delay once the presence of a spinal block has been confirmed by myelography. The general condition has naturally to be taken into account. Laminectomy with decompression is only a palliative procedure; but the chance of forestalling the distressing effects of paraplegia in a patient who is not in the terminal stages of the disease may be quite worth while.

If the paraplegia is the presenting symptom, the question arises, should œstrogen therapy be tried, or should operative decompression be embarked upon forthwith?

There is no doubt that other neurological lesions due to prostatic carcinoma can be relieved by œstrogen therapy alone in both a rapid and a dramatic fashion. Everyone has seen this happen with sciatica and root pains from involvement of thoracic and lumbar nerves. Also, paraplegia has been relieved by œstrogen therapy on its own.

I think, however, that the neurosurgeons would worry particularly over the time during which the compression is operative. Infarction of the cord occurs, and reversal of the pathological process does not depend entirely on the shrinkage of the metastatic plaque. Of the four patients reported, three were operated upon, and one survived for two years and, till shortly before his death, was ambulatory.

I now wish to mention another rarity—namely, the development of a secondary deposit in the testis from a carcinoma of the prostate. Ian Potts described such an occurrence in 1953 and found four similar cases in a review of the literature. Others have been described more recently. This case differs from the others, however, because the condition was clinically obvious before operation. In the other cases described, the microscopic deposits were found during routine histological examination of the testicular tissue after subtotal orchidectomy.

A man, aged 71 years, first presented for treatment in October, 1954. Rectal examination revealed an obvious carcinoma with advanced infiltration. His obstructive symptoms were rapidly relieved and controlled by stilbœstrol until March, 1957. He then complained of recurrence of his symptoms, and "TACE" was given, the dosage of stilbœstrol being increased. He was not examined again until July of that year, when he complained of a lump in the left side of his scrotum which had been noticed for the first time eight weeks previously. On examination of the patient, the left testis, which had previously been atrophic and flabby in consistency, was enlarged to a size approximately three inches in its longest diameter by two inches. It was hard in consistency, slightly nodular and without sensation. A clinical diagnosis of a malignant tumour of the testis was obvious.

While the patient was awaiting admission to hospital, he developed acute retention of urine. On August 6, 1957, left radical orchidectomy, right subcapsular orchidectomy and transurethral resection were performed. The histological report was as follows:

There is a adenocarcinoma present in the prostatic pieces which appears to be a typical adenocarcinoma of the prostate. There is an adenocarcinoma present in the testicular mass which is not a typical adenocarcinoma of the testis. In my opinion the carcinoma of the prostate is the primary tumour and the testicular mass is a metastatic deposit.

At the present moment the patient is alive and in good health—that is, 18 months later—despite the necessity some time ago of establishing a permanent suprapubic cystostomy, and the necessity even more recently of establishing a transverse colostomy for subacute intestinal obstruction. At this last operation, gross local infiltration was found, and the pelvic peritoneum was studded with metastases.

I should like to refer briefly to another case of interest. A man, aged 69 years, had presented six weeks previously with right renal colic of typical description, which left in its wake a constant aching pain in the right loin. Physical examination of the patient disclosed slight tenderness over the right kidney and a classical carcinoma of the prostate with infiltration upward and outwards on both sides. Intravenous pyelography revealed bilateral ureteric obstruction. Stilbœstrol therapy was commenced and the prostate regressed in size, the loin pain was relieved, and intravenous pyelography showed relief of the obstruction. This state of affairs has continued now for exactly two years.

Acknowledgements.

I wish to gratefully acknowledge the assistance of Mr. F. P. Morgan and Mr. J. K. Henderson in the preparation of this paper and for the operative details of those cases subjected to laminectomy.

RADICAL PERINEAL PROSTATECTOMY FOR CARCINOMA OF THE PROSTATE.[1]

By WILLIAM G. LUCAS, F.R.C.S. (England), F.R.C.S. (Edinburgh), F.R.A.C.S.
Sydney.

BEING one of the most recently joined members of this Society, it gives me great pleasure to be granted this opportunity of discussing with you this afternoon my views on the role of radical perineal prostatectomy in the treatment of carcinoma of the prostate.

In 1900, Halsted was Professor of Surgery at Johns Hopkins Hospital, when he selected Hugh Young to establish a department of urology. Hugh Young pointed out to him that if one saw a malignant lump confined to the breast, one removed the breast and got a good percentage of cures. He asked why, if one saw a malignant lump confined to the prostate, one did not also remove that, and get a good percentage of cures. This idea seemed reasonable, and in 1904 Hugh Young devised his operation of radical perineal prostatectomy, which removed the entire prostate with its capsule, the seminal vesicles and the base of the bladder.

Since that date, over 400 radical prostatectomies have been performed at the Johns Hopkins Hospital, and over 100 of the patients have been adequately followed up for ten years or more. This afternoon I wish to present to you an outline of our approach to carcinoma of the prostate and a summary of the experience derived from these cases.

First of all, which patients are selected for operation? There are two conditions to be satisfied. First, clinical examination must show that the carcinoma is confined to the prostate, there must be no X-ray evidence of metastases and the serum acid phosphatase level must be normal. Secondly, the general condition of the patient must be such that without the carcinoma he could be expected to live for ten years or more. Of all the "virgin" cases of carcinoma of the prostate seen at Johns Hopkins Hospital, only 15% fulfilled these criteria. Throughout the United States as a whole, about 5% of patients with carcinoma of the prostate are candidates for radical surgery. Yet at Walter Reed Hospital they have an operability rate of 40%. This is because all servicemen have an annual physical examination including a rectal examination.

We know that 90% of carcinomas of the prostate arise as nodules in the posterior surface of the gland. This means that the first suspicion we have is the finding of an area of increased hardness in the prostate on rectal examination in a patient completely without symptoms. Granted, then, a patient who fulfils the criteria with such a lump, what is the differential diagnosis? The nodule can be an early carcinoma, benign prostatic hyperplasia, granulomatous prostatitis, infarct of the prostate or prostatic calculus. The last is distinguished by X rays, but biopsy and microscopic examination are the only way to differentiate the others.

Therefore, in such a case the approach is to perform an open perineal biopsy of the lump with examination of a frozen section, then proceed with radical prostatectomy if the condition is malignant or close the wound if it is benign. A biopsy can be taken transrectally, retropubically, via a resectoscope or with a biopsy needle. I believe the open perineal route the best, because it comes straight down on the posterior surface of the gland; then one can see and feel and know that one takes an adequate biopsy specimen from the lump. Transrectally one does not get such an adequate exposure, and one must wait a week before proceeding with any further operation. I have had no experience with retropubic biopsy; but it seems to me to be a difficult way to get adequate exposure of the posterior surface of the gland. The uncertainty of taking a biopsy from a small lump on the posterior surface of the gland via a resectoscope or with a needle makes a negative finding in a specimen thus obtained of little value.

Having obtained a positive biopsy finding on examination of a frozen section, one then proceeds immediately with the operation of radical prostatectomy. The urethra is divided close to the apex of the prostate, and the whole of the gland with its capsule, the base of the bladder and the seminal vesicles are removed. The bladder neck is then brought down and anastomosed to the stump of the urethra.

What are the immediate results of this operation? In the last 200 cases at Johns Hopkins Hospital there were six deaths. The average duration of stay in hospital was two to three weeks. Urinary control depends largely on the skill of the operator in making the vesico-urethral anastomosis. Jewett, for example, got perfect control in all of his last 30 cases. Usually there is some difficulty in control for two or three months after operation. But after this period 84% to 95% of all patients had perfect control, depending on the type of closure used. A much more common complication is stricture at the vesico-urethral anastomosis. This develops in 15% of cases, but nearly always responds to a few dilatations. In the last 100 cases the rectum was injured four times, but no permanent fistulæ developed. Impotence occurs in almost every case; but as this also develops with hormone therapy, it is no real disadvantage.

Patients at Johns Hopkins Hospital who undergo radical prostatectomy do not have any routine pre-operative or post-operative hormone or deep X-ray therapy. I do not believe that if a patient's growth is inoperable when he is first seen, hormones can convert it to being operable, with the hope of cure, by reducing its dimensions.

What are the end results of this operation? One hundred and twenty-seven patients have been properly followed up for ten years or more. Forty-eight of the 127 had cancer clinically evident beyond the prostate when they were operated upon. In 10 years, six were alive, well and clinically free of cancer. Thirty-nine of the 127 had cancer microscopically evident beyond the prostate. In 10 years 10 were alive, well, and clinically free of cancer. Forty of the 127 had cancer microscopically confined to the prostate. In 10 years 21 were alive, well, and clinically free from cancer.

To answer the question whether these figures show the operation is doing good, we must compare exactly similar cases treated by other means. This, of course, presents a difficulty, as insufficient data are available. However, we do know certain facts. In the first place, hormone therapy is palliative only and has never rendered any patient cancer-free. In this respect I believe that radical surgery, being an attempt to cure as opposed to an attempt to palliate, offers a greater advantage to the patient. Of course, we can be sure that a patient is cancer-free only if microscopic examination is made of every tissue in his body; but it is very impressive to see such a percentage of patients coming back after ten years without taking hormones and being well, having no clinical evidence of cancer and with normal X-ray findings and serum acid phosphatase levels. We do know, from Nesbit and Baum's figures, that 90% of patients with carcinoma of the prostate, without metastases and without hormone therapy, will be dead in five years. It is my impression that this operation does rid the patient of his cancer. Barnes selected 31 patients who were suitable candidates for the radical operation, but instead gave them endocrine therapy. At the end of ten years 22% were alive, but all with cancer. This is only a small series, but the results are suggestive.

Another question to be answered is, what is the significance of so-called "latent" carcinoma of the prostate? There is no evidence that there are two different diseases—carcinoma of the prostate which spreads beyond the prostate, metastasizes and kills, and carcinoma of the prostate which remains within the acini of the prostate and is completely harmless and innocent. There is no test or microscopic appearance which will differentiate the two.

[1] Read at the twelfth annual general meeting of the Urological Society of Australasia, Melbourne, March, 1959.

It is true that with advancing years more and more men have carcinoma cells within the prostate. This, I believe, does not metastasize for two reasons: (i) the patients die of something else first; (ii) in the older age groups carcinomas grow more slowly. However, I would stress that this last statement is an opinion only. We know very few facts about the natural history of carcinoma, and until we know more we cannot make dogmatic statements. But, on the evidence we have, this seems to me to be the most logical view. However, I am sure it is true that those patients who had carcinoma spread into the vesicles were suffering from a truly malignant condition.

Conclusion.

In conclusion, I should like to point out the gaps in our knowledge of carcinoma of the prostate. We are very ignorant of the natural history of the disease, the first thing we should know before we can gauge the success of any treatment we may give. Although it is 17 years since Huggins introduced castration œstrogen therapy, we cannot answer such basic questions as the following: (i) What is the optimum time to begin endocrine therapy; (ii) What is the correct dosage? (iii) Should castration precede, follow or be performed with the commencement of œstrogen therapy? (iv) Is one œstrogen better than another? (v) What is the yardstick to measure success of our treatment?

Against this background of ignorance, it is hard to be dogmatic about any form of therapy. However, this concept of trying to find the early case, of making a positive diagnosis from tissue and of attempting to cure the patient by removing all the malignant tissue—this concept, I believe, is based on sound surgical principles.

Reviews.

The Ætiology of Infective Diseases: With Special Reference to the Subsidiary and Important Nonspecific Factors. By Reginald Lovell, D.Sc. (Manchester), Ph.D. (London), M.R.C.V.S., D.V.S.M., 1959. Michigan: State University Press. Sydney, London, Wellington and Melbourne: Angus and Robertson, Limited. 5½" × 8", pp. 136. Price: 33s. 3d.

THIS slim volume is the substance of a series of lectures given at Michigan State University in 1955. It suffers from the long delay in publication, partly because certain sections have become out of date (notably the discussion of "Q" fever) and partly because the point of view argued by Professor Lovell has recently been presented more lucidly and more skilfully elsewhere, notably by Dr. René Dubos.

The author is concerned, primarily, with the multitude of factors which may affect the incidence and clinical severity of infectious diseases. He points out that it is not enough to have identified the ætiological agent of an infectious disease. Latent and inapparent infections are so common that attention should now be focused on the unspecific factors which affect the host-parasite balance—age, sex, nutrition, season, etc. As a veterinary bacteriologist he has been able to draw upon the wealth of information available from the diseases of domestic animals, and for medical readers this is probably the most valuable part of the book. Unfortunately, there is only a brief general bibliography, so that it is not easy to pursue some of the interesting problems raised in these sections.

There are a few printing errors ("morality" for "mortality" on page 48) and there is a good index.

Hypertensive Disease: Diagnosis and Treatment. By S. W. Hoobler, M.D.; 1959. New York: A Hoeber-Harper Book. 9½" × 6", pp. 363. Price: $7.50.

THE scope of this book is accurately described by the title, and by the notice on the dust cover that it is "a practical guide to clinical management including treatment given at home, at the office, in the hospital". There is nothing of the pathology and pathological physiology of hypertension, and little of clinical features except in so far as they are a guide for treatment.

The work is essentially description of the methods used at the author's unit at the University of Michigan Hospital. It is divided into five sections on the following subjects: (i) secondary hypertension susceptible to cure; (ii) secondary hypertension not susceptible to cure; (iii) primary hypertension; (iv) principles underlying the treatment of primary hypertension and its complications; (v) use of specific treatment regimes. Twelve appendices give details of various tests and treatment techniques.

The author commendably recommends a frank attitude to the patient; in fact, "the physician has the duty to inform the patient that he has hypertension". However, he gives a warning that therapeutic enthusiasm should "not go so far as to destroy the enjoyment of that very life we are trying to prolong".

The book gives a sane, well-balanced approach to the problem of treatment of hypertension. The order of sections emphasizes the importance of separating off the secondary and possibly curable forms. The prime emphasis is on drug treatment, as is the current fashion.

It is inevitable that the personal views expressed in this book will not find universal acceptance. A definition of hypertension in a patient aged under 50 years as a systolic blood pressure over 150 mm. of mercury and a diastolic pressure over 90 mm. would be regarded by many as too rigid. To many, the enthusiasm for some blood-pressure estimations as a guide to treatment would seem to be somewhat dangerous. (The only illustration is of a technician taking her own blood pressure.) Numerous case histories are given. Some of these do not seem to add anything—for example, the case (page 53) of a patient with retinal vein thrombosis whose vision improved with drug treatment, an event which might well have occurred with no treatment. Some of the space might have been better used with tables showing the over-all effect of treatment.

In spite of these criticisms, this is a useful book and should prove valuable, particularly to physicians who have not had the opportunity to build up their own experience along the long, hard road of themselves managing a hypertension clinic.

The Treatment of Diabetes Mellitus. By Elliott P. Joslin, A.M., M.D., Sc.D., Howard F. Root, M.D., H.H.D., Priscilla White, M.D., Sc.D., and Alexander Marble, A.M., M.D.; Tenth Edition; 1959. Philadelphia: Lea & Febiger. Sydney: Angus and Robertson, Limited. 9" × 6", pp. 798, with 153 tables. Price: £9 1s. 6d.

THOSE interested in diabetes and diabetics will expect much of a new edition of the famous book by Dr. Joslin and his colleagues. In some respects the reader may be disappointed. This is not to say that the high standard of earlier editions has not been maintained, but rather that a conservative approach has produced a certain staleness which impairs the capacity of the book to adapt itself to recent advances in diabetes. The present (tenth) edition still bears the same inexplicable and inappropriate title, which suggests that the book is largely devoted to the treatment of diabetes; "management" would be a better word, and in any case some of the best sections are concerned with ætiology, pathogenesis and prognosis. Again, it is disappointing to see the outmoded presentation of references, huddled apologetically at the bottom of every page, without titles. Lastly, the style of writing still carries a note of urgent mission, a suggestion of the drama of saving life. This manner of writing was no doubt more acceptable in the twenties when insulin was new, coma a common complication, and the science of biochemistry still in its infancy. Today we look for a less personal and more detached approach from the physician, who is now part scientist.

On the other hand, there is much to praise in the book. It is beautifully published and the style maintains a certain readable, almost conversational, quality which makes it eminently suitable as a reference book for the practitioner with a problem in the form of a difficult diabetic. An excellent chapter on the use of drugs for oral administration in the treatment of diabetes has been added, while the contentious subject of hormone therapy for pregnant diabetics is discussed in an impartial manner by Priscilla White, who states her case for the use of hormones and leaves the reader to judge for himself.

The problems of fat metabolism and arterial disease in diabetes appear to be related, and the authors have not shirked these difficult subjects. An excellent review of the biochemistry of diabetes forms a background for a description of disturbances in fat metabolism, and the section on cardio-vascular and renal disease in diabetes is full and critical.

Although the method of presentation used does not make for freely accessible data, it can fairly be said that the book is ideal for those who wish to improve their knowledge of diabetes by systematic reading, and that the solution of almost every practical problem in the management of diabetes is somewhere to be found in its pages.

Comparative Endocrinology. Edited by Aubrey Gorbman; 1959. New York: John Wiley & Sons, Incorporated. London: Chapman & Hall, Limited. 9" × 5¾", pp. 768, with many illustrations. Price: $15.00.

A BOOK dealing with comparative endocrinology has been long needed and long awaited. So far the literature dealing with this fascinating subject has been too diffuse for any one reader to encompass more than a corner. Endocrinologists and physiologists alike are therefore indebted to Dr. Gorbman for editing a book on the subject which is remarkably comprehensive. Gratitude is also to be expressed to Professor I. Chester Jones, at whose suggestion the first international symposium on comparative endocrinology was held. This book, in fact, is no more than the publication of the 43 contributions which make up the proceedings of the Columbia University Symposium on Comparative Endocrinology. The words "no more" may convey some measure of the value of the book. Symposia have now become accepted as one of the established features of academic life, and those not fortunate enough to have attended this particular symposium can console themselves by reading the many splendid papers and discussions which go to make up the book. A list of the contributors, who came from all over the world, is sufficient to indicate the quality of the papers.

This book is not a text-book, and will consequently appeal chiefly to the specialist; indeed, it is difficult to imagine any reader being equally interested in every contribution.

The scope of the book can be judged from the nature of the topics discussed. Ten chapters deal with the subjects of neurosecretion and neuroendocrine interrelationships. This new field is already established as a science in its own right, and one which has stemmed to a great extent from studies of comparative physiology. Nine chapters are devoted to comparative studies of reproduction, and these together form a suitable background for those interested in human reproductive physiology. Three chapters dealing with the comparative physiology of the function of the islets of Langerhans present information which must be new to most readers, while the functions of the thyroid, pituitary and adrenal cortex in lower forms are fully discussed.

In short, those who are anxious to know why endocrine structures have evolved, and something of the functions of these organs in lower forms of life, will find this book a source of fascinating information, the very nature of which stimulates further inquiry into the fundamentals of endocrine physiology.

Human Nutrition and Dietetics. By Sir Stanley Davidson, A. P. Meiklejohn and R. Passmore; 1959. Edinburgh and London: E. & S. Livingstone Ltd. 9¾" × 6", pp. 857, with several illustrations. Price: 84s. (English).

IT is a long time since anyone produced a book which purported to cover the whole field of nutrition and dietetics; but this has now been done successfully in this work by Sir Stanley Davidson, A. P. Meiklejohn and R. Passmore. Each of the three authors is a recognized authority on various aspects of the subjects treated.

The book is divided into six parts. Part I gives an account of the physiology of nutrition much along the lines of that given in a good text-book of physiology, but much more fully. All through, stress is laid on those things which are of particular interest clinically. This part is one-third of the whole text. Part II deals with foods, and the various kinds of foods consumed by man are considered in detail. There is a short but useful discussion on the use of food tables. There is much valuable information in this section, including a discussion on food poisons and food as a source of infection.

Part III deals with food and lack of food in relation to disease. Subnutrition and starvation are treated fully. Obesity is treated very sensibly, including its treatment. Diseases associated with lack or deficiency of one or more elements of a good diet are treated fully, with good accounts of modern investigations. Each of the commoner food deficiency diseases is considered in a first-class monograph. The diseases described in Part III are related to the lack of essential food factors in the diet; in contrast, in Part IV diseases are discussed in which diet appears to be one of several ætiological factors. These include diseases of the various parts of the alimentary tract which are dealt with in great detail, including management of the diet. Diseases of the liver and biliary tract are dealt with in detail, as are diseases of the cardio-vascular system.

The authors dismiss in a few lines the idea, currently widely held, of the relation between intake of unsaturated and saturated fatty acids and coronary disease, or as they prefer to call it, ischæmic heart disease. There is a long section on diabetes, and diseases of other organs in which food may play a part are considered. Part V deals with public health in relation to food, and this is interpreted liberally. Part VI deals with diet and physiological stress, including pregnancy, lactation, athletics and the effect of climate.

It will be seen that the book covers a very wide field. It contains a vast amount of information presented in a very readable fashion and quite up to date. It can be recommended to all medical men and to others interested in human feeding.

Cancer of the Skin. By John C. Belisario, C.B.E., E.D., M.D., Ch.M., D.D.M.; 1959. London and Sydney: Butterworth & Company (Publishers), Limited 8½" × 5", pp. 354, with 201 illustrations. Price: 63s. 6d.

IN Australia, a large portion of the population is composed of people with fair complexions who do not tan readily on exposure to sunlight. Because of this, skin cancer is one of our most serious medical problems.

Here we have a book written by an Australian dermatologist who has had an unusually wide experience of the subject. In concise and clear language he presents chapters on classification of skin cancers, terminology, histogenesis of rodent and squamous carcinoma, ætiology, etc., all in logical sequence. One soon finds that this book is based upon the author's own experience, which is particularly wide, even for an Australian, and most of the clinical photographs are of his own patients. The illustrations are of a high standard and clearly show the features which the author wishes to depict. The references are up to date and have a very wide coverage, having been selected in many cases in order to present other points of view and to indicate methods of treatment other than those preferred by the author.

This book is handsomely produced, and the text is broken up by subheadings, which makes for easy reading. In addition to its value from the clinical point of view, it is a most excellent review of the subject which should be on the desk of any medical practitioner who sees patients with skin lesions.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"The Central Nervous System and Behavior: Transactions of the Second Conference, February 22, 23, 24 and 25, 1959, Princeton, N.J.", edited by Mary A. B. Brazier, Ph.D.; 1959. New York: Josiah Macy, Jr. Foundation. 9" × 5¾", pp. 358, with 88 illustrations. Price: $4.75.

"Antibiotic Therapy for Staphylococcal Diseases", edited by Henry Welch, Ph.D. and Maxwell Finland, M.D., with a foreword by Félix Martí-Ibáñez, M.D.; Antibiotic Monographs, No. 12; 1959. New York: Medical Encyclopedia, Incorporated. 9" × 6", pp. 222, with Illustrations. Price: $4.50.

"Stepping Stones to Labour Ward Diagnosis", by R. H. J. Hamlin; 1959. Adelaide: Rigby Limited. 7¼" × 4¾", pp. 163, with 29 illustrations. Price: 10s. 6d.

"Weight Gains, Serum Protein Levels and Health of Breast Fed and Artifically Fed Infants, Full Term and Premature", Privy Council, Medical Research Council Special Report Series, No. 296; 1959. London: Her Majesty's Stationery Office. 9¼" × 6", pp. 164, with 68 tables and 69 figures. Price: not stated.

"The Anti-Globulin (Coombs) Test in Laboratory Practice", by I. Dunsford, Ph.D., M.I.Biol. and Jean Grant, F.R.C.P.; 1959. Edinburgh and London: Oliver and Boyd, Publishers. 8¼" × 5¼", pp. 132, with illustrations. Price: 12s. 6d. (English).

"The President's Review including a Quarter Century in the Natural Sciences", by Warren Weaver; 1958. The Rockefeller Foundation, Annual Report 1958. 8¼" × 5¾", pp. 198, with illustrations.

The Medical Journal of Australia

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THE ARMED FORCES MEDICAL SERVICES.

THE fourth report of the House of Commons Select Committee on Estimates dealing with the medical services of the armed forces,[1] which was published late last year, brings to mind the various efforts made in Australia to combine the medical services of the Navy, Army and Air Force. After his experience in World War II, the Director-General of Medical Services of the Australian Military Forces, Major-General Sir Samuel Burston,[2] emphasized the fact that some duplication of medical facilities in that war had been unnecessary and costly, and advocated "the maximum degree of coordination that can be achieved in any future war". In his opinion the services should be prepared to "amalgamate their medical resources in certain aspects of their responsibilities" and in particular in relation to hospital facilities at the base, in the lines of communication and at forward bases.

This was no new plea. In 1922 determined efforts were made to amalgamate the medical services of the several armed forces.[3] Although this was apparently agreed upon at the time by the members of the committee that recommended it to the Minister, and he in turn approved of the amalgamation in principle, the Royal Australian Navy and the Royal Australian Air Force opposed it. After the matter had been further stimulated by the Federal Committee of the British Medical Association in Australia, the R.A.A.F. Medical services were, in 1927, placed under the direction of the D.G.M.S., A.M.F. This never appeared to be a happy union, and in 1940 the R.A.A.F. medical services were given back their independence and a D.G.M.S., R.A.A.F. was appointed.

Since World War II many countries have investigated and urged the unification of the armed forces medical services. Various degrees of coordination and integration have been achieved in these countries, with the notable exception of Great Britain. Pakistan, the Philippines and India have in each case quite a high degree of integration of their medical services, and each has a Director-General of Medical Services (or Surgeon-General in the case of the Philippines) of the armed forces within its Defence Department, who is responsible to the Defence Minister for the coordination of the activities of the medical services of its armed forces. The U.S.A. appointed, after World War II, an Assistant Secretary, Defense (Health and Medical), who is responsible to the Secretary, Defense, for the coordination of all activities of the three armed forces medical services. Moreover, to overcome duplication of facilities and services, the single manager system has been developed in the U.S.A.; for instance, the U.S. Navy is the single manager for the procurement of medical equipment for the three armed forces medical services. In Canada, the medical services were unified into a single Canadian Forces Medical Service in January, 1959. This is the ultimate of integration. Information concerning its functioning and its effect on the armed forces and on the efficiency and morale of the medical officers appears difficult to obtain. It is probable that an accurate unbiased assessment cannot be made until at least a decade has passed or, more likely, a new generation of officers has grown up under the new conditions.

Two committees in Britain since World War II have investigated this problem. The first, the Waverley Committee in 1953, reported against amalgamation but advocated closer coordination, with the formation of a medical coordinating committee on similar lines to the then Canadian Forces Medical Council. In 1959, the Select Committee on Estimates dealing with the medical services of the armed forces, in the report which we have already mentioned, came to the conclusion that a high degree of integration should be the long-term objective concerning the medical services of the Royal Navy, the Army and the Royal Air Force. The report states that the Committee was chiefly concerned during its inquiry into the armed forces medical services to point to the need for a fresh approach to the problems. It recommended that integration should be accepted as the long-term objective, and emphasized that the services should first study the working of the Canadian scheme. In the meantime it stressed that the services should actively pursue the policy of coordination of the medical branches.

The advantages and disadvantages of integration are fairly stated in the report. Briefly, the advantages, in the opinion of the Select Committee, stem from the greater size and scope available to a joint service, better promotion prospects, and increased efficiency with some saving in professional manpower, even if this means replacing doctors by trained non-medical staff officers. The Select Committee did not agree that the disadvantages were such as to prevent successful and efficient integration, although it was not sure how to overcome the problem of the responsibility of the individual service minister for his own medical service. The representatives of the British Medical Association in their evidence showed they were opposed to integration because of the specialized fields existing in naval and aviation medicine as opposed to military medicine and, as one of its representatives put it, because of the "devastating" effect on the morale of the medical officers. It may be noted that the Armed Forces Medical Committee of the B.M.A. includes amongst its members a senior retired medical officer of each of these services and that the chairman is one of these officers. The Select Committee found that the attitude of the service departments to integration of the medical services was "disappointingly

[1] "Fourth Report from the Select Committee on Estimates: Session 1958-59: The Medical Services of the Armed Forces", 1959, Her Majesty's Stationery Office, London.

[2] MED. J. AUST., 1949, 2: 37 (July 9).

[3] "Australia in the War of 1939-45. Series 5 (Medical). Middle East and Far East", by A. S. Walker, 1953, Australian War Memorial, Canberra, pp. 6-15.

inflexible", and the impression gained was stated in strong words:

> that integration is strongly opposed by the Service Departments, for different reasons, and that there is such pronounced bias against it as to make an impartial study on their part of the possibility of integration difficult of realisation.

In countries such as the United Kingdom and United States, the ground forces alone in peace time are as large as or indeed larger than the combined Australian armed forces in war time. There is, therefore, some cogent reason for assuming that complete unification of their armed forces medical services may become unwieldy and therefore less efficient and less economical. Concerning one of the two major factors always quoted as an almost insurmountable obstacle to unification of medical services—that is, the existence of specialized branches of service medicine, such as aviation medicine, field hygiene, tactical employment of field medical units, and underwater medicine—it is interesting to note what happens overseas. The U.S. Army has medical officers trained as specialists in aviation medicine; there were 52 of these in 1958. Both the U.S. Navy and the U.S. Air Force have their own individual aviation medical schools, and the army sends its medical officers to these schools for the longer courses. The one medical service cares for the Marine Corps of the U.S.A., whose activities cover land, sea and air. Similarly, care of the Marine Corps in the U.K. is in the hands of the Royal Naval Medical Service, which also cares for the Royal Naval Flying Personnel. It is no wonder that the Select Committee did not agree that this was a valid obstacle.

Australia is a large country with a relatively small population, and her economy is intimately related to her progress and expansion—in some ways similar to Canada. Most Australians accept the principle that defence is important to the future welfare of their country. Australia cannot adequately defend herself without recourse to the help of her friends, so she has entered into commitments with her allies. Having entered into these commitments, she must honour them. However, defence is mostly unproductive and costly, and therefore everything must be done to ensure economy without the impairment of efficiency. Australia has three armed forces, and each has its own medical service with its various facilities. It would be reasonable to believe that there was a fruitful field for coordination and integration within the three medical services. For example, it would seem logical that, instead of each medical service requiring and competing for its own service hospitals, some of these could be integrated. Both British and American defence forces have instances of this approach. The Netley Hospital in Britain is the psychiatric hospital for the three services, and the R.A.F. Hospital at Rinteln (Germany) had until recently a joint Army and Air Force medical staff. The Tripler Hospital in Hawaii is a joint service hospital, and there are other instances in the overseas bases of the American forces. Similarly in the realm of medical equipment it is attractive to think that one service would supply the three medical services or that the medical supply system could function with an integrated staff. Certainly in any future war medical manpower and medical supplies will need to be very strictly conserved.

In order to achieve any degree of coordination and integration, a gradual approach is essential. Australia should learn from the endeavours of other countries and from its own experiences. Perhaps the first step would be to appoint a medical coordinator or director in the Defence Department, who would be dissociated from the day-to-day administrative responsibility of running his own service, and would be charged with the responsibility of minimizing duplication of facilities and ensuring the economic use of equipment and personnel. However, the most important lesson to be learnt from the endeavours in the fields of coordination and integration in other countries is that to achieve any degree of success there must be a firm direction from the highest Government authority. If the matter is left to the services themselves, vested interests, inter-service rivalries and even personalities may cause any such endeavours to be stillborn.

Current Comment.

WOUND DÉBRIDEMENT.

THE term *débridement* is old. It was used by Paré in the sixteenth century and brought into favour by Desault and Larrey during the wars of the French Revolution and Napoleonic era. At first it implied simple incision to provide drainage and to relieve tension; later, especially during the first World War, it came to mean wound excision, and still later it included removal of all foreign matter plus aseptic excision of all damaged and contaminated tissue. The importance of appreciating these background facts is apparent from a recent article by Norman W. Hoover and John C. Ivins[1] who have given an historical summary of wound treatment over the centuries. They point out that successive generations remain ignorant of what their predecessors learned by experience and so proceed to learn the same lessons for themselves, often at the cost of lives and limbs. They also indicate the dangers of chemotherapy in lulling surgeons into forgetting the principles and practice of good surgery. The introduction of antiseptic and aseptic techniques had a similar effect on earlier surgeons. We still have no substitute for careful, adequate surgical *débridement*. Primary closure, or delayed primary closure before the fourth day, as practised early in the first World War, usually failed. Undue delay beyond the fourth day may also result in failure, because granulation and fibrosis make the wound less pliable and bacteria begin to flourish. At the end of World War I the surgical management of wounds was much as it is now.

Infection is the chief cause of delay in healing. Some organisms are introduced at the time of the accident, others are introduced later. One way to prevent this post-traumatic infection is to avoid meddlesome interference at the first-aid stage; nothing should be done beyond applying a dressing. It must be remembered that each change of dressing makes for contamination. The time elapsing between wound contamination and wound infection is usually assumed to be about six hours, but it varies considerably according to the number and type of organisms and the amount of tissue damage. The technique of *débridement* varies with the type of wound, the traumatizing agent and the environment. In essence it involves enlarging of the wound, exploration, aseptic excision of all devitalized tissue, removal of foreign matter, complete hæmostasis and liberal irrigation of the wound with normal saline. It should be done before contamination becomes infection, and in a fully equipped operating theatre. The wound is covered with gauze, the skin is shaved and cleaned, and the whole wound is irrigated with normal saline; this preparation

[1] *A.M.A. Arch. Surg.*, 1959, 79: 701 (November).

requires several changes of towels and gloves. Excision of the wound is done in layers. It is rarely necessary to remove more than a thin slice of skin about the defect, but the subcutaneous tissue must be more freely excised. Fascia is incised rather than excised, and then come the important muscle layers. The best indication of viability of muscle is its consistency, its contractility and its ability to bleed. Periosteum should not be removed unless it is severely contaminated. Loose bone is probably best removed, but any bone with a periosteal attachment should usually be retained. Tendons should be preserved in spite of contamination. Wounded joints should be widely opened for removal of debris and fragments of cartilage; then the ligaments and capsule should be closed without drainage. Conservatism is permissible in the hand and foot because there are no large muscle masses in them. Cut nerves may be repaired at once if the wound is clean, if treatment is immediate, if anastomosis is possible without tension and if they can be well covered; otherwise repair must be delayed until the wound is healed. Any large vessel that can possibly be repaired should not nowadays be sacrificed, and collateral vessels should be carefully preserved. If end-to-end union of a large artery cannot be effected, a graft from the saphenous or basilic vein is usually adequate. Damaged veins accompanying a major artery should also be repaired if possible. Bones, arteries and nerves should be covered with any available muscle. Primary closure should not be effected for war wounds except for certain kinds mentioned below; it may be used occasionally for civilian injuries, but great judgement is called for. The following points must all be considered: the interval since the injury, the amount of contamination, the condition of the patient, the thoroughness of the excision, the state of the blood supply, the completeness of the hæmostasis, the possibility of closure without tension and without leaving dead spaces, and the certainty of continuous observation for seven to ten days. If there is any doubt, the wound should be left open in the hope that delayed primary union may be possible.

Excluded from these recommendations are wounds of the scalp, especially those with intracranial extension, sucking wounds of the chest and wounds of the face and of the hands. All these need immediate primary suture, but the hand has its own problems; it is often necessary to leave hand wounds open for delayed closure, which usually causes little loss of tendon function. Delayed primary union requires complete initial surgery so as to produce a clean wound. The debrided wound is drained and covered with fine mesh gauze, not packed, and supported by a large occlusive dressing for four or five days. By this time the wound will have a glazed fibrin membrane which controls the exudative phase of healing and is the indication for closure. If at this time there is any suspicion of enclosed spreading infection, late secondary suture is required. Enzymes such as streptokinase, streptodornase, trypsin and pepsin can be important adjuncts in the treatment of infected and necrotic wounds, but their action is uncertain and they are no substitute for surgical *débridement*.

In conclusion, we are offered the following interesting list of the commonest mistakes that interfere with the prompt healing of wounds: (i) improper concept of *débridement*, (ii) sacrifice of too much skin, (iii) plugging of the wound with "Vaseline" gauze, (iv) primary suture of debrided wounds in doubtful circumstances, (v) interference with wounds before or after *débridement*, (vi) insufficient mobilization of the debrided tissues, (vii) ignorance of the technique of delayed suture in spite of its wide use during World War I.

THE TREATMENT OF WARTS BY HYPNOSIS.

THE common factor in the numerous folk-lore remedies for warts was faith in the cure, and many would agree that such remedies were quite often surprisingly successful. It is therefore interesting to read a carefully objective study of the treatment of warts by hypnosis such as that carried out by A. H. C. Sinclair-Gieben and D. Chalmers[1] at Aberdeen. These authors selected 14 patients with multiple common warts distributed bilaterally and of at least six months' duration. Under hypnosis it was suggested to each patient that the warts on one side of the body (the worse side being selected) would disappear; the other side served as a control. As a guide to the depth of hypnosis attained, each patient was also given some simple post-hypnotic suggestion; if the action suggested was performed, it was assumed that the depth of hypnosis was adequate. In four of the patients hypnosis was only light, and no benefit resulted; in one patient, though the depth of hypnosis appeared to be moderate, post-hypnotic suggestion was unsuccessful, and again no benefit was obtained; however, in the other nine patients, in whom a moderate or deep level of hypnosis was attained, the warts disappeared from the predicted side in every case, after an interval of from 5 to 12 weeks. In one case the warts disappeared from the other side as well after a further six weeks, but in the remainder the control side was unaffected. Sinclair-Gieben and Chalmers conclude that warts can be cured by hypnosis, but that hypnosis must reach a certain depth. With the inclusion of seven other patients treated by hypnosis, they found that 15 out of 21 consecutive patients could be hypnotized to a depth adequate to achieve cure.

Like many other familiar phenomena, the common wart is very imperfectly understood. Sinclair-Gieben and Chalmers point out that the common belief that warts are caused by a virus rests on very inadequate evidence. There are good reasons for supposing that this is true of some warts, but it may not be the complete explanation and may not be true of all warts. Sinclair-Gieben and Chalmers make the interesting suggestion that hypnotic suggestion confined to one side of the body would prove a useful tool in the investigation of the ætiology of various conditions. Their experiment is an instructive demonstration of that influence of the mind over the physical body which is so frequently observed in medical practice, but which is so difficult to pin down for critical examination.

THE AUSTRALIAN COUNCIL OF SOCIAL WELFARE.

A DEVELOPMENT of no little importance in the field of social welfare in Australia was the inauguration on June 1, 1959, of the Australian Council of Social Service. This step was the result of the reorganization of the former Australian Social Welfare Council. The purpose of the Council is to provide an organization in which all fields of social welfare in Australia may be represented; it brings together in association State Councils of Social Service, appropriate Commonwealth statutory bodies and national voluntary social welfare organizations. Through its membership of the International Conference of Social Work, it provides a link with social welfare work throughout the world and a means whereby Australia can contribute to and benefit by world thinking on this subject. The chairman is Professor Morven Brown, the deputy chairmen are Dr. J. G. Hunter and Archdeacon G. T. Sambell, and the honorary secretary is Miss Jean Anderson.

In view of the potential importance of this body, it is of interest to learn that it is planning the first National Conference of Social Welfare to be held in Melbourne from May 23 to 27, 1960. The theme is to be "Social Welfare in Australia—Today and Tomorrow". The conference is open to all member organizations and their constituents and to any other persons interested in social welfare. The cost is £5 for full membership and £2 10s. for students. Correspondence about the conference should be addressed to the Organizing Secretary, Mrs. G. Myles, 44 Beaver Street, East Malvern, S.E.5, Victoria.

[1] *Lancet*, 1959, 2: 480 (October 3).

Abstracts from Medical Literature.

MEDICINE.

Tolbutamide.

J. M. MOSS, DE WITT E. DE LAWTER AND J. J. CANARY (*Ann. intern. Med.*, June, 1959) report the results of treatment of 200 diabetic patients with tolbutamide, and discuss secondary failure of treatment. Of these patients, 49% obtained a good or excellent result, 17% showed no demonstrable benefit from taking the drug, and 16% obtained temporary benefit followed by a secondary failure to respond. The best results were obtained in the non-ketonic, asymptomatic, older diabetic patients who were of near-normal weight and who received less than 40 units of insulin daily. Most of the primary and secondary failures were in patients who did not meet these criteria. Five patients had a good response for several months, and then developed secondary failure without obvious cause. Because this secondary failure cannot always be predicted, it is important that patients on tolbutamide should be followed up at intervals of from four to eight weeks after initial stabilization. Six obese patients obtained better results from a placebo than they did from tolbutamide. The good results often reported in obese patients are due to reduced caloric intake rather than to tolbutamide. Obese patients should be treated by diet alone, and tolbutamide used only if hyperglycæmia persists. Eleven patients underwent major surgery, and two had normal pregnancies while their diabetes was controlled with tolbutamide. These conditions do not preclude the use of tolbutamide. There were no significant toxic effects from tolbutamide.

Radioiodine Therapy of Hyperthyroidism.

G. E. SHELINE AND E. R. MILLER (*A.M.A. Arch. intern. Med.*, June, 1959) discuss radioiodine therapy of hyperthyroidism, and present an analysis of the results of this treatment in 431 patients. Of these, 29 had toxic nodular goitre, 78 had a recurrence of toxic goitre after surgical treatment, and 324 had toxic diffuse goitre. In 95% toxicity was controlled with radioiodine, and therapy in the other 5% was in most cases incomplete. Thyrotoxicity was controlled in 59% by one treatment, and 61% became euthyroid within three months. Hypothyroidism developed in 17% and recurrence in 3% of patients with toxic diffuse goitres. It is certain that hypothyroidism or recurrence may follow radioiodine therapy; however, the incidence depends on the definition of terms. When hypothyroidism occurred it was usually seen within a few months, but in one case it did not appear until the sixth year after therapy. Exophthalmos may decrease, appear, or progress after radioiodine therapy. It would appear that in this respect, the results are about the same or slightly better than after subtotal thyroidectomy. Orbital decompression became necessary in one patient, but in no case was vision lost. There was one unexplained death three weeks after treatment with radioiodine. Three patients under 20 years of age developed thyroid nodules five or more years after therapy.

Oral Vaccine for Poliomyelitis.

H. ABAD-GOMEZ *et alii* (*J. Amer. med. Ass.*, June 20, 1959) describe community-wide immunization with attenuated poliovirus in the Colombian Andes. During an outbreak of paralytic poliomyelitis in southern Antioquia, Colombia, in January, 1958, 2922 families agreed to accept immunization by an orally administered vaccine against the disease, and this was carried out with attenuated strains of poliovirus (Types 1, 2 and 3) from May, 1958, onwards. Only children between two months and six years of age were given the vaccine. They first received Type 1 vaccine (the type isolated during the Andes outbreak); four weeks later they were given two capsules of Type 2 virus, and three weeks later one capsule of Type 3 virus. Serological evidence showed that of the immunized children who lacked demonstrable type-specific antibody at the time of vaccination 91% responded to Type 1 virus, 72% to Type 2, and 87% to Type 3. Of 58 children shown to have negative responses before vaccination to all three types of poliovirus, none remained so after immunization. Four new cases of poliomyelitis occurred in the Andes study area after the start of oral vaccination, but none of these occurred in an immunized child or a contact of an immunized child. No undesirable reactions associated with or attributable to oral vaccination have occurred. The safety and immunizing efficiency of the strains of virus employed were demonstrated in 986 immunized children or their contacts, who were without serological evidence of previous exposure to any type of poliovirus, and in more than twice this number of children who lacked antibody to one or two types of poliovirus.

R. N. BARR *et alii* (*J. Amer. med. Ass.*, June 20, 1959) describe the use of live attenuated polioviruses administered orally as a prophylactic measure. Five hundred and fifty volunteers were given poliovirus or a placebo by mouth over a period. There were no obvious reactions to the oral virus. The children who received the virus showed an increased titre of neutralizing antibody, as also adults, to a lesser extent. The children and adults who had received a placebo did not show the same result. Positive results were noted in individuals who had previously received Salk vaccine, and this was thought to be significant. This study gave strong evidence of the effectiveness and safety of the living attenuated poliovirus used.

Cryptococcosis.

P. RAVISSE *et alii* (*Presse méd.*, April 11, 1959) report the first case of cryptococcosis in French Equatorial Africa. The patient was a girl, aged 18 years, who had been delivered of a stillborn child. The patient's central nervous system was affected. The infection appeared to be primary, and the fulminating attack seemed to have been set off by the patient's state of lowered resistance due to anæmia of pregnancy and obstetric trauma. This yeast organism is known to be ubiquitous; recently it has been found in soil. The authors discuss the question whether the precipitating cause was the antibiotic therapy given to the patient. They state that the doses were moderate and the treatment was of short duration (11 days); however, *Candida albicans* was found in the patient's stomach, in the absence of lesions of moniliasis in the mouth. The disease ran a very rapid course; it occurred in an acute form, and the patient had an elevated temperature throughout, which is rare in cryptococcosis. The authors state that the end was hastened by extremely severe hepatitis. The presence of preceding generalized urticaria and the histo-pathological findings are both in favour of the hepatitis being of the fulminating viral type rather than a reaction to the antifungal agent used.

Myxœdema.

H. A. BLOOMER AND L. H. KYLE (*A.M.A. Arch. intern. Med.*, August, 1959) discuss myxœdema and present a reevaluation of the clinical diagnosis based on 80 cases. Despite progressively more accurate thyroid function tests, clear-cut clinical myxœdema often goes unrecognized. The presenting complaints in this condition are often non-specific. However, the leading symptom in this series, paræsthesiæ of the extremities, was of sufficient severity and frequency to be of considerable diagnostic import. The most frequent and probably most specific confirmatory sign was slow relaxation of the deep tendon reflexes. Significant delay in diagnosis often occurs despite frequent medical consultation. Such oversight is abetted by the patient's inadequacy as a historian, and by the examiner's preconceived and often erroneous concept of the clinical picture of myxœdema. A history of prior thyroidectomy significantly reduces the delay in diagnosis. The most helpful laboratory test in this series was the protein-bound iodine determination; the level was abnormal in 98% of cases. Adequate response to desiccated thyroid is a characteristic of true primary myxœdema. Failure of response should suggest inaccurate diagnosis. It appears that despite increased understanding of thyroid disease, and the development of more precise tests of thyroid function, thyroid deficiency is being overlooked with the same frequency as was the case a quarter of a century ago.

Eosinophilic Granuloma of Lung.

A. E. ANDERSON, JR., AND A. J. FORAKER (*A.M.A. Arch. intern. Med.* June, 1959) discuss eosinophilic granuloma of the lung and present the clinical notes of two cases. Eosinophilic granuloma is defined as a chronic inflammatory disorder of unknown ætiology characterized primarily by the presence of histiocytes and eosinophils. It is probably related to the Hand-Schüller-Christian syndrome and Letterer-Siwe disease, and it may involve one or more systems of the body, including the lungs. Certain features are consistent with an allergic origin. Previous descriptions have emphasized the mild symptomatology

of pulmonary eosinophilic granuloma, its good prognosis, and the frequency of diffuse interstitial infiltrations with associated polycystic changes in the lungs. The onset is insidious, and symptoms consist chiefly of slight cough, chest discomfort and dyspnœa. The most alarming feature has been the not infrequent occurrence of pneumothorax in cases complicated by cyst formation. In the two cases described, the patients did not have pneumothorax, but had severe respiratory insufficiency and were critically ill. A few râles have been the commonest physical findings except in the presence of pneumothorax. Lymphadenopathy and hepatosplenomegaly have been conspicuously absent despite the fact that eosinophilic granuloma represents a form of reticulo-endothelial hyperplasia. The frequent radiological finding is a striking, diffuse reticulonodular infiltration of the lungs, the shadows of which are indistinguishable from changes that can occur with a large number of other disorders. The diagnosis of pulmonary eosinophilic granuloma is dependent on histological study of diseased tissue (by lung biopsy or at autopsy). Steroids appeared to be lifesaving in the two cases reported; both patients were critically ill with respiratory insufficiency. In both of these cases the diagnosis was proved by lung biopsy.

Atrial Septal Defect in Patients over Forty.

D. KAVANAGH-GRAY AND B. B. MATHUR (*Canad. med. Ass. J.*, March 1, 1959) state that longevity in the face of a physiologically significant atrial septal defect is not uncommon, and present a review of this abnormality. The diagnosis should be considered in patients with a precordial heave, a pulmonary systolic ejection murmur, and a fixed splitting of the second pulmonary sound. Electrocardiographic findings of right bundle branch block and right atrial enlargement, and radiological demonstration of right-sided cardiac enlargement and pulmonary vascular engorgement strengthen such a diagnosis, which is confirmed by the demonstration of an inter-atrial shunt. The authors state that surgery is almost routinely advised in children with a significant atrial septal defect, but that in the over-forty age group this carries some risk. In their series, of 14 patients subjected to operation three died and two suffered peripheral embolism, and the authors recommend that, for the present, operation should not be performed on an asymptomatic patient over 40 years of age who has a small shunt which has caused no significant increase in pulmonary pressures. Patients who have large shunts with increased pulmonary pressure should be operated upon if the shunt is still left to right. If the shunt is bi-directional, repair may still be advised if the pulmonary flow remains increased. Operation is contraindicated once the shunt is from right to left.

Digitalis Delirium.

G. CHURCH AND H. J. L. MARRIOTT (*Circulation*, October, 1959) report three cases of digitalis delirium. The term has been applied to an agitated form of acute confusional psychosis induced by a digitalis preparation. Despite its recognition nearly 100 years ago and despite the fact that "dementia" produced by digitalis has been upheld in the law courts in defence of homicide, the subject has not received much attention. The three cases of digitalis delirium reported resulted from toxicity of three different preparations. In one patient an alarming psychosis was induced by a short-acting glucoside, which lasted for more than two weeks after cessation of the drug. Another case illustrates the ease with which the diagnosis of digitalis intoxication can go unrecognized when superimposed on a complex clinical picture.

Post-Myocardial Infarction Syndrome.

N. J. WEISER, M. KANTOR AND H. K. RUSSELL (*Circulation*, September, 1959) state that the post-myocardial infarction syndrome is characterized by prolonged or recurrent fever, chest pain, clinical and laboratory evidence of pericarditis, pleurisy and pneumonitis. The authors describe four patients who had in common a history of myocardial infarction followed, after a varying interval, by unusual manifestations including prolonged and delayed pericarditis with or without effusion or hæmorrhagic pneumonia without pulmonary infarction. They stress the potential misinterpretation of this syndrome as fresh myocardial infarction, pulmonary embolism or cardiac failure. The therapeutic pitfalls involved in these errors in diagnosis are discussed. In view of the ease with which these four cases were collected after the authors became aware of this syndrome, they believe that these manifestations are not uncommon.

Smoking, Fasting Blood Sugar and Pressor Amines.

K. REHDER AND G. ROTH (*Circulation*, August, 1959) studied 24 normal subjects under basal conditions, observing the effect of smoking two-thirds of each of two cigarettes. There was a significant rise in blood pressure and pulse rate and decrease in skin temperature of fingers and toes, but there was no appreciable change in the level of the fasting blood sugar or of noradrenaline substances in the systemic venous blood. The authors conclude that the smoking of cigarettes is unlikely to cause erroneous diagnosis of diabetes mellitus because of elevation of blood sugar level.

A Monoamine-Oxidase Inhibitor in the Treatment of Primary Hypertension.

L. GILLESPIE *et alii* (*Amer. Heart J.*, July, 1959) report the use of a monoamine-oxidase inhibitor, 1-phenyl-2-hydrazinopropane (JB-516, "Catron") in the treatment of primary hypertension. They state that monoamine oxidase is involved in the metabolism of several active amines, including tryptamine, serotonin and noradrenaline. It was also noted that patients treated with iproniazid, another monoamine-oxidase inhibitor, frequently developed hypotensive manifestations. The new drug studied was chosen as being one of the most potent inhibitors of monoamine oxidase and at the same time relatively non-toxic. The authors noticed orthostatic lowering of blood pressure in 18 of 21 hypertensive subjects. Six patients also had distinct lowering of the recumbent blood pressure. The lack of parasympathetic side-effects suggests that this type of drug may offer considerable advantages over ganglion-blocking agents in the long-term treatment of severe hypertension. Six patients developed loss of red-green colour discrimination, without other visual defects, whilst receiving large doses of JB-516. This condition subsided promptly on discontinuance of the drug. The authors consider that chlorothiazide potentiates the anti-hypertensive effect of JB-516. Further evaluation of this type of compound is at present being undertaken.

The Heart in Systemic Lupus Erythematosus.

M. A. SHEARN (*Amer. Heart J.*, September, 1959) reviews the cardiac changes in systemic lupus erythematosus. In this condition the heart seldom escapes insult, but interpretation of the diverse cardiac manifestations is often made complex by the coexistence of conditions producing similar findings such as anæmia, tachycardia, pulmonary disease or pre-existing heart disease. A typical verrucous endocarditis, formerly a common finding at autopsy, appears to be less frequent today. The diagnosis of verrucous endocarditis can hardly be made on clinical grounds and systolic murmurs do not correlate with the endocardial changes. As a rule, Libman-Sacks endocarditis does not alter cardiac dynamics to a degree sufficient to cause heart failure. Hypertension occurs in one-fifth of the patients with systemic lupus erythematosus, and is often accompanied by severe renal disease. Each of seven patients with the nephrotic syndrome had hypertension; however, the absence of hypertension does not exclude renal complications. Pericarditis is recognized in life in one-third of all patients; at necropsy approximately twice that number are discovered. So far constrictive pericarditis has not been recognized. Myocarditis is frequently found at autopsy and may contribute to heart failure. A few isolated cases have been reported of cardiac infarction complicating systemic lupus erythematosus, but it is doubtful whether a causal relationship exists between these two entities. Electrocardiographic abnormalities have been reported in 62% of patients; most commonly a non-specific *T* wave change is discovered.

Myocardial Disease with Progressive Muscular Dystrophy.

P. LISAN *et alii* (*Amer. Heart J.*, June, 1959) state that cardiac involvement in progressive muscular dystrophy has been previously recorded and its incidence in this condition estimated as from 50% to 85%, depending upon the type, severity and distribution of lesions involving the skeletal muscles. The clinical manifestations of the myocardial complication consist mainly of various arrhythmias, heart failure, generalized cardiomegaly and non-specific electrocardiographic abnormalities. They occur particularly with the juvenile type of muscular dystrophy and may determine an early fatal outcome. The authors describe two such cases.

Medical Societies.

THE UROLOGICAL SOCIETY OF AUSTRALASIA.

THE twelfth annual general meeting of the Urological Society of Australasia was held at Melbourne on March 1 to 5, 1959, DR. LEONARD MURPHY, the President, in the chair.

President's Address.

LEONARD MURPHY (Melbourne) delivered his Past President's address, entitled "On Mr. Beaney and his Urological Writings and Experiences" (see the issue of February 27, 1960, page 313).

Modern Treatment of Renal Tuberculosis.

PROFESSOR E. LJUNGGREN (Stockholm) read a paper entitled "Modern Treatment of Renal Tuberculosis" (see the issue of February 27, 1960, page 322).

DOUGLAS B. DUFFY (Melbourne), in opening the discussion, said that in Australia they were fortunate, in that they saw relatively little genito-urinary tuberculosis, and of what they did see, a considerable proportion occurred in New Australians. Thus, when it came to a discussion of a procedure such as partial nephrectomy, which was performed in only a small percentage of those cases, Australian experience was even more limited. Mr. Duffy thought that partial nephrectomy was an extremely valuable procedure in that small group to which it was applicable. The technical problems of the actual operation were not great, but the main difficulty was in the selection of the cases. It was very difficult to be certain of the extent of the disease in a kidney, not only from the pyelograms, but even more so at operation. In most cases of unilateral renal tuberculosis, the disease was fairly extensive, and nephrectomy combined with medical treatment was the answer. They did not seem to see the disease very often in its early more localized form, and it was in that stage that medical treatment, with or without partial nephrectomy, had its place. He had performed only three partial nephrectomies for renal tuberculosis, two of them in newly arrived migrants who were no longer traceable. Another problem was the ureteric stricture, which not only occurred in a ureter whose kidney was the seat of disease, but also might occur at the lower end of what was apparently a normal kidney and ureter, when the bladder remained affected. Mr. Duffy finally said that a somewhat rare condition had been encountered in a patient who had pulmonary as well as genito-urinary tuberculosis, and whose presenting symptom was dribbling after micturition. He had a large tuberculous prostatic abscess cavity, which filled with urine that subsequently dribbled out. During the course of his medical treatment, Mr. Duffy resected the abscess cavity transurethrally, and the patient had made a very good recovery.

HENRY MORTENSEN (Melbourne) asked Professor Ljunggren his views on the treatment of genital tuberculosis, particularly acute epididymitis which progressed to rapid softening. Mr. Mortensen said that originally Professor Ljunggren would have advised epididymectomy after prolonged chemotherapy. Recently, however, he had developed a more conservative attitude, for often surgery after chemotherapy disclosed a healed lesion. Mr. Mortensen pointed out that chemotherapy had made a great difference to the results of pelvic tuberculosis, which, before the advent of chemotherapy, had been very depressing to treat. He advocated regular guinea-pig inoculation and routine cultural examination of the urine of all people with extraurinary lesions, even though the urine was crystal-clear macroscopically and no albumin was found. Only such mass examination would allow early diagnosis of urogenital tuberculosis. Naturally, those examinations—namely, guinea-pig inoculation and culture—were essential if the urine contained pus cells. The urine of between 4% and 12% of people with extraurinary lesions gave positive results on culture.

R. G. S. HARRIS (Sydney) said that Professor Ljunggren's paper was an incentive for the use of prolonged medical treatment. Mr. Harris asked Professor Ljunggren what routine of chemotherapy was used, and discussed the question of the necessity for removing the ureter, pointing out that it was his opinion that the virulence of the Australian tubercle bacillus seemed to be less than in other parts of the world, for the need for ureterectomy had been small. Mr. Harris thought that the ureteral condition commonly resolved after nephrectomy. He also asked Professor Ljunggren about the question of cutaneous ureterostomy, and quoted Hanley as finding a cutaneous ureterostomy sometimes unsuccessful.

C. M. EDWARDS (Sydney) asked if there was any difficulty in giving large doses of PAS, and inquired if Professor Ljunggren had had any experience with more recent products.

HUGH PEARSON (Sydney) asked why triple therapy was used in urological tuberculosis, when the physicians in the treatment of pulmonary tuberculosis commonly used only two drugs and kept the third for the possible development of drug resistance.

Professor Ljunggren, in reply, described the régime of chemotherapy. He said that streptomycin was given in a dosage of 1 gramme every day, PAS in a dosage of 12 grammes a day in three divided doses, and INAH daily. When the patient did not tolerate those drugs, or when sensitivity tests showed that the tubercle bacillus had developed resistance, then occasionally they had used thiosemicarbazone, occasionally also "Terramycin" and cycloserine; but they were reluctant to use the last-mentioned drug because of the development of anæmia. Other drugs that had been used were vitamin D and chaulmoogra oil. Professor Ljunggren thought that nephro-ureterectomy was even more common with the greater use of chemotherapy, and quoted figures of Band, who, in the period of 1950 to 1955, had performed 42 nephro-ureterectomies but only 22 nephrectomies.

Hugh Pearson (Sydney) asked what technique of angiography was used—whether it was carried out by means of a retrograde femoral catheter or by aortic puncture.

Professor Ljunggren replied that more and more use was being made of retrograde catheterization of the femoral artery, pointing out that with later developments or with newer developments, selective angiography of the various branches of the renal artery was now possible.

A. B. ALDER (Melbourne) asked whether Professor Ljunggren had had any experience in the dilatation of ureteral strictures with bougies, how frequently the dilatation was required, and what were the end results.

Professor Ljunggren replied that he had very little experience in that method of treatment, and described an open method with retrograde dilatation.

E. W. KYLE (Perth) said that he had performed the operation of cavernotomy on one occasion, but that it had been followed by a persistent urinary fistula. He asked how that could best be avoided.

Professor Ljunggren replied that it was necessary, of course, that the cavity be a closed one, without any communication with the renal pelvis.

NOEL BONNIN (Adelaide) said that he thought that Professor Ljunggren had said that all cases of genital tuberculosis were associated with renal disease. Mr. Bonnin quoted three cases of epididymitis in which repeated intravenous pyelographic examinations showed no evidence of renal lesions. He asked also when chemotherapy for genital lesions was stopped.

Professor Ljunggren, in reply, quoted the work of Medlar, who had stated that all epididymitis was secondary to renal tuberculosis; but he did not believe that that was necessarily so. However, Professor Ljunggren said that at least 50% of patients with epididymitis had renal lesions; possibly the figure was even higher. He emphasized that all cases of epididymitis were associated with tuberculous prostatitis. He believed that the epididymitis was not an hæmatogenous infection, but rather a direct spread from the prostate. The duration of treatment was a minimum period of one year. He also said that 20% of all renal tuberculosis presented as epididymitis.

The Place of Dialysis in Renal Failure in Surgical Practice.

M. R. EWING (Melbourne) read a paper entitled "The Place of Dialysis in Renal Failure in Surgical Practice" (see the issue of February 27, 1960, page 327).

KEITH KIRKLAND (Sydney), in discussing Professor Ewing's paper, said that in general their experiences at Sydney Hospital had been similar to his. He thought that Professor Ewing had quoted a sufficient variety of cases to show the scope of the artificial kidney and the value of dialysis; therefore, apart from quoting one or two cases from which he believed that particular lessons might be learnt he proposed to limit his remarks to general principles.

Dr. Kirkland agreed absolutely that an attempt should be made at the earliest opportunity to assess the underlying causes of anuria or oliguria. That demanded X-ray films of the urinary tract, an estimation of hæmoglobin value, hæmatocrit, blood urea level, etc. Fluid and electro-

lyte deficits should be calculated, and in the history taken, details should be sought as to blood or fluid loss by hæmorrhage or vomitus, what replacement therapy had been carried out and what drugs had been administered. Dr. Kirkland said that the most common cause of oliguria was circulatory inadequacy causing altered renal hæmodynamics, and that in some degree commonly followed a major surgical operation. Restoration of the blood volume reestablished urinary secretion, unless the kidney ischæmia was of long standing, when anatomical changes occurred, and acute renal failure due to tubular necrosis intervened. It was important to discover at the outset whether that had occurred. The result of early restoration of fluid and electrolyte deficits was helpful in making the decision as to whether dialysis might be necessary.

Dr. Kirkland then presented Table I, to show the causes of acute renal failure in 50 cases in the Department of Clinical Research, Sydney Hospital. The information had been supplied by the Director, Dr. Malcolm Whyte. Dr.

TABLE I.

Causes of Acute Renal Failure in 50 Cases.

Cause.	Number of Cases.
Circulatory insufficiency:	
Operative shock	11
Dehydration	6
Obstetric shock	5
Traumatic shock and crushing	4
Myocardial infarct	1
Ganglion blockade	1
	28
Intravenous hæmolysis:	
Septic abortion	3
Transfusion of incompatible blood	2
	5
Renal disease:	
Acute glomerular nephritis	4
Poisons (?)	3
Malignant hypertension	3
Hepato-renal disease	2
Chronic pyelonephritis	1
Chronic glomerulonephritis	1
	14
Obstruction:	
Lymphosarcoma	1
Following prostatectomy	1
	2
Not known	1

Kirkland said that the causation in some cases was not always obvious, but most probably there was an unappreciated blood loss, an unrecorded fall in blood pressure and an unrecognized kidney abnormality.

Dr. Kirkland went on to say that dialysis had definite limitations, and it was an opportune to consider its value generally. He had had no experience in the pre-operative use of the measure and would doubt its value. After all, the procedure did not cure or relieve any kidney disease, and management in renal failure was designed to maintain normal fluid and electrolyte patterns and to take care of any clinical emergencies. The most important indication for external dialysis was to tide the patient over a dangerous period created by temporary renal failure. The majority of patients with acute renal failure would recover by intelligent conservative management; but after dialysis, nursing was easier, and cooperation by the patient made every aspect of supervision less difficult. The semi-comatose, uncooperative patient was replaced by an individual able to take three meals a day, for whom some degree of ambulation was possible. By dialysis, it should be possible to avoid death from causes directly attributable to renal failure; but when that occurred in association with other major damage, such as a severe fracture of the skull or rupture of the bowel, the procedure was pointless.

Of the patients at Sydney Hospital, half required dialysis at least once; most of them were severely ill and not expected to survive without dialysis. Of those subjected to dialysis, half survived. Most of the deaths were considered to be inevitable, either because of the severity of the renal lesion or because of damage to other systems. It was obvious from Table I that about 30 patients developed trouble from surgical or obstetric causes, and of those only nine died. That figure could have been better had their management been better prior to their admission to Sydney Hospital.

Dr. Kirkland went on to say that drug and antibiotic therapy must be reviewed during any oliguric period, and no substance with any toxic potential, such as streptomycin, normally excreted by the kidneys, might be given. When streptomycin had been given, they regarded that fact as an indication for immediate or early dialysis. In six cases in which the drug had been used, early dialysis was deliberately carried out; one patient suffered mild effects and another temporary disability. In six other cases, toxic effects and damage occurred when dialysis was not performed. One patient who had had a septic abortion had been anuric for three days on her admission to hospital, and as she had been given 5 grammes of streptomycin, dialysis was carried out on the fifth day; no eighth-nerve damage resulted. In another case of anuria, again following septic abortion, 12 grammes of streptomycin had been given prior to the patient's admission to Sydney Hospital. Dialysis was carried out on the day after her admission, which was the eleventh day of anuria, and again eighth-nerve damage was avoided.

It appeared that streptomycin did not have an immediate effect on the eighth nerve, and some days were available for its elimination by dialysis. The safest rule was never to administer streptomycin in anuria or oliguria.

Some Aspects of Renal Tumours.

PROFFESSOR E. LJUNGGREN (Stockholm) read a paper entitled "Some Aspects of Renal Tumours" (see page 330).

Prostatectomy.

N. J. BONNIN (Adelaide) read a paper entitled "Prostatectomy—Rationale and a Technique" (see page 361).

WARWICK MACKY (Auckland) read a paper entitled "Hrynstchak Prostatectomy" (see page 368).

S. C. FITZPATRICK (Hamilton, Victoria) read a paper entitled "The Scope of Total Prostatectomy" (see page 369).

M. SALVARIS (Melbourne) read a paper entitled "Retropubic Prostatectomy: An Evaluation of 1200 Operations" (see page 370).

JAMES MORTENSEN (Melbourne) read a paper entitled "Some Aspects of Carcinoma of the Prostate" (see page 376).

W. G. LUCAS (Sydney) read a paper entitled "Radical Perineal Prostatectomy for Carcinoma of the Prostate" (see page 378).

PÆDIATRIC SOCIETY OF VICTORIA.

A MEETING of the Pædiatric Society of Victoria was held on May 13, 1959, at the Royal Children's Hospital, Melbourne.

Acute Pancreatitis in Childhood.

DR. P. JONES discussed acute pancreatitis. He said that it was an uncommon condition in childhood, and two cases had been discovered in the records of the Royal Children's Hospital. It was no doubt much more common in adults, and perhaps some indication of the relative frequency could be drawn from a collected series of 1510 cases, one of which was in a child. The underlying cause was obscure when one excluded cases resulting from trauma, sepsis and biliary disease. Mumps virræmia was a well-documented cause, for as early as 1922 Farnam had collected 119 cases in which pancreatitis had been observed in relation to overt clinical mumps. Of these, 31 were thought to have occurred in children. In Australia, Dey had reported a case of acute pancreatitis in a baby, aged 18 months, on whom no serological investigation had been performed, but whose sibling had suffered from mumps. Dey was able to find only 18 recorded cases of acute pancreatitis in which mumps and other definite causes could be excluded.

Dr. Jones went on to say that the two cases at the Royal Children's Hospital presented interesting features. Both patients were girls, and the first was aged two years. Her illness had commenced in 1955 with an upper respiratory tract infection of two weeks' duration. Vomiting had commenced the night before her admission to hospital, and by the next morning she was listless and cold, with bluish lips. Vomiting had continued for a further twelve hours and had culminated in a convulsive seizure. She was admitted to hospital at 4.30 p.m., an acutely ill little girl in peripheral circulatory failure. Apart from slight distension, no abdominal signs were present. Deterioration of her condition was rapid, and she died three hours after her admission. Post-mortem examination revealed acute hæmorrhagic pancreatitis with widespread fat necrosis, the

post-mortem serum amylase content being 800 units. Attempted cultural isolation of virus from the pancreas was unsuccessful. Mumps and herpes could definitely be excluded, and probably Coxsackie B virus infection as well.

The second patient, a girl, aged five years, had been admitted to hospital on August 11, 1957, with a history of lower abdominal pain of two days' duration. Vomiting had been a persistent symptom from the onset. On examination, she was seen to be flushed; her temperature was 99·2° F., and there was generalized voluntary guarding on abdominal palpation with moderate tenderness over the lower half of the abdomen. A diagnosis of acute obstructive appendicitis with spreading peritonitis was made, and at operation through a McBurney incision a large amount of beef-tea-coloured free fluid was found. Widespread fat necrosis was immediately apparent, especially in the caecum and omentum. On palpation, the pancreas was found to be much enlarged, and woody œdema was present. A Meckel's diverticulum was found, but it contained no pancreatic tissue. The appendix and diverticulum were removed and the abdomen was closed without drainage. The post-operative course was uneventful, a light diet being taken on the third day, and she was transferred to a convalescent hospital on the fifth day. Serological examination excluded mumps as a cause of the peritonitis.

Dr. Jones said that the two cases had in common the classical features of gross pancreatic swelling, with widespread fat necrosis and free fluid in the abdomen. In both cases mumps appeared to have been excluded as a cause of the acute pancreatitis. The greatest dissimilarity between the two cases was that one patient was dead and the other alive. With much the same pathological findings, one had been admitted to hospital *in extremis* with circulatory failure, the other in good health—she had never been really ill, and made a rapid recovery despite an inaccurate pre-operative diagnosis.

Maingot considered that there were two types of acute pancreatitis, which he described as (*a*) acute œdematous pancreatitis, with a mortality rate of 1%, and (*b*) acute hæmorrhagic pancreatitis, with a mortality rate of approximately 80%. It seemed much more likely that the two types really represented the extremities of the clinical spectrum of the disease. The two cases described could reasonably be added to the short list of 18 cases in which no known ætiological process would be indicated.

Myeloid Leukæmia Following Irradiation.

DR. MONA BLANCH discussed a case of chronic myeloid leukæmia in a boy, aged four years and three months, who had had the disease for three and a half years. The child had been first examined at the Royal Children's Hospital on February 7, 1956. He was then aged 11 months, the first child of a Japanese mother and an Australian father. It was stated that his abdomen had been large from the age of six months, and that for two weeks he had been feverish with a swelling in the right side of the neck. On examination, the child was seen to have an enormous spleen extending to the umbilicus and a mass of cervical glands; the hæmoglobin value was 9·9 grammes per 100 ml. (68%) and the leucocyte count was 189,000 per cubic millimetre. The blood film showed the characteristics of leukæmia, probably chronic myeloid in type. Inquiry later elicited the information that his mother had been living three miles from the centre of the atom bomb explosion at Hiroshima and had spent the following two days assisting in rescue work. She had become ill in 1946; at first her illness had been regarded as due to tuberculosis, but later this diagnosis had been changed to that of "radiation sickness". She had not fully regained her health until 1952. She had been radiologically examined once, when eight and a half months pregnant.

In view of the grave prognosis in a young child with leukæmia, it was decided to treat him only with cortisone. He was put on 25 mg. of cortisone per day for a month, with almost complete disappearance of the glands, although the spleen remained unchanged. The hæmoglobin value rose to 80% and the number of leucocytes fell to 39,000 per cubic millimetre. The cortisone dosage was reduced to 12·5 mg. (half tablet) per day for the next month, but the hæmoglobin value fell to 60% and the leucocyte count rose again. For the next five months he was given half a tablet twice a day, and during that time he was reasonably well; but the hæmoglobin value did not rise above 60%, and the other features were virtually unaltered. After a slow reduction the cortisone therapy was finally stopped in March, 1957, after 13 months' treatment.

During the remainder of 1957, he was, if anything, better. He grew one inch and gained four pounds. The hæmoglobin value varied between 70% and 80%, but the leucocyte count did not at any time approach normal.

In January, 1958, he was not so well, he was found to be bruising easily, he lost his appetite and he lost four pounds in weight. In June, 1958, he developed an acute upper respiratory tract infection, for which he was admitted to hospital. An X-ray film of his chest showed extensive mottling throughout both lung fields, and the hæmoglobin value dropped to 34%, a blood transfusion of 800 ml. being required.

By August, 1958, he appeared to have almost regained his usual state of health. In view of the fact that he was still alive after three years and was suffering so much mechanical disability from the enormous spleen, it was decided to refer him to Dr. J. H. Colebatch for an opinion on the desirability of treatment with newer drugs and also of splenectomy. He was admitted to hospital in October, and after blood and bone marrow studies, which showed that the myeloid leukæmia was more acute than previously, on October 23, he was put on "Myleran" in a dosage of 1 mg. (half a tablet) per day.

For the next month the hæmoglobin value remained about 40%; but the leucocyte count did not drop until the end of November, and then only to 57,000 per cubic mm. On December 2 he was readmitted to hospital, and blood transfusion was given until the hæmoglobin value had risen from 34% to 110%. In spite of a reticulocytosis of 23%, it had fallen to 38% on December 16. In view of this rapid fall despite good hæmopoiesis, bowel hæmorrhage was suspected; but no occult blood could be found in the stools. The "Myleran" dosage was reduced to 1 mg. on alternate days, and after consultation with Dr. G. R. Kurrle, it was decided to give him a course of deep X-ray therapy. This was begun on December 24 and continued three times a week until January 29, when it had to be stopped because of excessive bleeding; the number of platelets, which had been reduced throughout, was now 40,000 per cubic millimetre, and there were petechial hæmorrhages on the skin and mucous membranes, as well as large ecchymoses and hæmatomata scattered over the body and scalp. The spleen had been reduced only about two inches in size. Four pints of blood had been given in five weeks.

Prednisolone, in a dosage of 10 mg. three times a day, and tetracycline for the infected hæmatomata, produced a striking improvement, and by the middle of February, 1959, the child had gained five and a half pounds in weight and had a marked Cushing-type of facies. The prednisolone dosage was reduced to 15 mg. per day, and splenectomy was reconsidered. In consultation with Mr. Russell Howard this was agreed to, for the following purposes: (i) to relieve him of the weight of the spleen; (ii) as an attempt to lessen the hæmolysis; (iii) to lessen the thrombocytopenia. Mr. Howard removed the ninth rib on February 24, and after the splenic artery had been clamped this was followed by some reduction in the size of the spleen; the spleen was removed. Dense adhesions, which bound it to the diaphragm and omenta, had to be divided. The spleen measured 9 in. by 4 in. after removal. Convalescence was aided by a transfusion of three pints of blood, and was reasonably uneventful apart from a small left pleural effusion. "Myleran" dosage was increased to 1 mg. five times a week, and the dosage of prednisolone was gradually reduced and this drug was finally stopped on April 14.

Dr. Blanch said that the boy had been wonderfully well after operation, and the hæmoglobin value had not dropped below 70%. Despite an increase in "Myleran" dosage to 1·5 mg. and then to 2 mg. per day, the primitive cells continued to increase in the blood.

On May 5, 6-mercaptopurine in a dosage of 175 mg. per day (a maximum dose) was started, and was to be given for five days. This had a dramatic effect, the leucocyte count falling from 300,000 to 19,000 per cubic millimetre by May 12. The patient still had some hæmorrhages into the subcutaneous tissue of his fingers, ears and hand on that date. A tetracycline cover was given, and the "Myleran" and mercaptopurine were both stopped. In view of the excellent response to the latter, there seemed to be a good chance of controlling the leukæmia for some time.

DR. B. NEAL presented the history of a boy, aged 13·5 years. His mother's pregnancy had been normal and she had not been radiologically examined. His progress had been normal until he commenced school during his sixth year. Although he progressed well, he sometimes came home because he "couldn't stand the noise", and occasionally vomited. Tonsillectomy failed to ease his

vomiting, which gradually became more frequent. In his seventh year his parents moved to the country. In the hope that the fresh air would benefit his general health; it had not done so. On the contrary, his vomiting had become more frequent, and he had also complained increasingly of headache. Medical treatment having been unavailing, his parents had consulted a masseur and later a herbalist. Towards the end of that year he had developed a squint and became unsteady on his feet. In desperation his parents had returned to Melbourne, where they were referred to an oculist. He, having examined the optic fundi, had referred him to Mr. R. Hooper. Clinical examination of the boy had showed him to be a pale child, with a large head in which a "cracked pot" note could be demonstrated; bilateral papilloedema, bilateral sixth-nerve palsy, nystagmus, incoordination and intention tremor of the left hand and gross ataxia were present. An X-ray examination of the skull showed gross sutural separation and digital marking, and a ventriculogram showed gross internal hydrocephalus, the aqueduct being dilated and the lower end kinked forward and obstructed. Posterior fossa decompression was carried out. At operation, a cystic and solid tumour involving the inferior part of the right lateral lobe of the cerebellum, the right cerebellar tonsil and adjacent areas was found, but its removal was incomplete owing to anæsthetic difficulties. Histological examination showed the tumour to be a vascular astrocytoma. After operation the boy made slow but steady improvement, and by the beginning of his eighth year he was relatively well.

During the succeeding 14 months he received three courses of irradiation to the affected area, the dosages being 2400, 2500 and 2000 *r*. A moderate hearing loss followed, but he remained otherwise well until at the end of his eleventh year, he fell from a stationary truck. Pink fluid immediately issued from his left ear, and he spent the next five months in hospital suffering from recurrent meningitis. Midway through his twelfth year, grossly osteoporotic left temporal bone was curetted away and a fascial graft was inserted. That operation involved the removal of the auditory ossicles from the left ear. After that he had no more meningitis, but he was quite deaf in the left ear, and there was a considerable hearing loss in the right ear. His general health was good, and he returned to school.

In August, 1958, in his thirteenth year, he was examined because of his deafness, and routine examination revealed gross enlargement of the spleen and an external hæmorrhoid. The hæmoglobin value was 40%, and the leucocyte count was 270,000 per cubic millimetre. Inquiry revealed that his general health had not been quite satisfactory for some time, abnormal pallor and fatigue having been noticed for perhaps 12 months. He was admitted to the Royal Children's Hospital, where hæmatological investigation showed him to be suffering from leukæmia of the chronic myeloid type. After a blood transfusion he was treated with the antimetabolite "Myleran" in a dosage of 2 mg. per day. That had been continued since, with one interruption of a few weeks. There had been a very satisfactory clinical response, the leucocyte count having fallen to normal within a few weeks, and by May, 1959, it was still normal, and the patient felt well.

DR. J. COLEBATCH said that the two cases of leukæmia were of particular interest from the point of view of some of the recent advances in knowledge of that disease. Both patients had responded to therapy to a degree that justified the efforts; both of them were considered to have leukæmia of the myeloid type; both of them raised the question whether irradiation could cause leukæmia.

The patient presented by Dr. Blanch had developed his leukæmia in the earliest months of his life. Steroid therapy for a year was associated with a partial but very prolonged remission extending almost until he was three years old. Then there was a gradual deterioration, with some change in the leukæmia cell pattern. That was followed, at three and a half years, by the commencement of specific therapy with "Myleran". Radiotherapy to the enormous spleen, and then splenectomy, were later carried out. At four and a quarter years he seemed to be going to respond further to mercaptopurine. Thus he had been under treatment for a period of three and a quarter years already—a record for any child with leukæmia in the hospital, and perhaps in Melbourne—and they hoped to control the disease for some years to come. In the world literature of leukæmia, the record period of survival for a child was eight years. Originally the patient's blood and bone-marrow pictures most closely resembled those characteristic of myeloid leukæmia of the chronic type—metamyelocytes predominated, myeloblasts were scanty. Subsequently—more particularly in the preceding year—the trend had been towards a predominance of the more primitive cells, the premyelocytes chiefly. That was to say, the picture has been changing towards that of acute myeloid leukæmia. Dr. C. J. Louis had shown that, in chronic leukæmia, the leukæmic cells still contained a normal quantity of fluorescent globulin, shown by special staining, whereas in acute leukæmia many at least of the leukæmic cells lacked that globulin. By that means Dr. Louis, working in the hæmatology clinic, had confirmed that the patient's leukæmia was of the acute variety. Whether it was truly of the chronic variety as far back as 1956 could not be told, for the fluorescent globulin technique was not then in use.

Dr. Neal's patient also had myeloid leukæmia, which in that case developed at the latter end of childhood. Despite a suggestion from the cell pattern that it might be of the chronic type, the fluorescent globulin technique showed it to be of the acute type—an observation that deserved discussion at some other time. "Myleran" had produced a good remission in that boy, though the drug was originally considered useful only in chronic cases. The remission had lasted nine months so far, and one could expect to extend the period considerably with mercaptopurine when its use became necessary.

Dr. Colebatch went on to say that the most important aspect common to both those cases of leukæmia was their relationship to irradiation as a possible cause. Was leukæmia really produced by irradiation? One should admit first that in no individual case of leukæmia was it yet possible to be certain of the cause. That might be fortunate, for it could save a lot of heartbreaking from unwarranted feelings of guilt. However, tremendous strides had recently been made in the knowledge of the ætiology and pathogenesis of the disease, notably by Dr. D. G. Metcalf, of Melbourne. A satisfactory understanding of the ætiology of leukæmia had still not been achieved, but there was reason to believe that factors such as heredity, infection, chemical agents, hormones and psychological stresses might all play a part, in addition to irradiation.

Irradiation as a factor might have been suggested first by the reporting, in the early 1920's, of cases of leukæmia occurring in radiologists. In the laboratories irradiation was readily proved capable of producing leukæmia in mice, notably by the work of Furth and Furth in 1936. In human beings the evidence naturally was more difficult to obtain, and the leading role that irradiation played in the treatment up till the end of the war doubtless discouraged the search for evidence that it might be also a cause of the disease. Court-Brown in 1958 had produced a critical review of the subject, concluding that: "The data provide convincing evidence of man's susceptibility to the induction of leukæmia by irradiation." First in that evidence, there was the greater susceptibility of radiologists to leukæmia. The data of several investigations indicated that the leukæmia incidence in non-radiological practitioners was not significantly higher than in the general population, but in radiologists, up till 1950, the incidence of leukæmia was about eight times as high. Secondly, the 1945 Hiroshima atomic explosion had provided convincing information. Amongst those surviving the explosion, the incidence of leukæmia was definitely increasing by 1948, and it reached its peak in 1951—52 cases, with at least a fivefold increase above the number of cases to have been expected from Japanese national data. In the survivors who had been closest to the explosion, within 1000 metres of the hypocentre, the incidence of leukæmia was very much greater still—some 20 times greater. Thirdly, there was a growing dossier of incriminating evidence from the clinical field. In 1950 Duffy and Fitzgerald, at the Memorial Hospital for Cancer in New York, reported that out of 28 children and adolescents with thyroid cancer, no less than 10 had had irradiation of the thymus in infancy. This led to a follow-up study in Rochester of 1400 patients who had been irradiated in infancy for supposed enlargement of the thymus, and of 1795 controls, consisting of the siblings of the treated children. In the control group there were no cases of leukæmia and only five of cancer—an incidence of 0·28%; but in the thymus-irradiated group there were seven cases of leukæmia and 10 of cancer—an incidence of 1·2%, four to five times higher than in the controls. Recently the authors themselves had pointed out the difficulties in assessing that evidence, one reason being the possibility that enlargement of an infant's thymus might itself be associated with an increased susceptibility to leukæmia. That work had also been criticized by the radiotherapist at the Memorial Hospital in New York, who had said that "the Rochester X-ray dosages were too big, the area irradiated too large, and the technique lousy".

Ankylosing spondylitis in adults treated by radiotherapy had produced more acceptable evidence. Court-Brown and Doll in 1957 reported a follow-up of the records of 13,352 patients thus treated in British centres. The incidence of leukæmia in them was ten times that expected from the national vital statistics.

Finally, there was the work of Alice Stewart and her colleagues from Oxford. As was well known, they had found, by retrospective questioning of mothers, that 42 of the mothers with 269 leukæmic children had had abdominal X-ray examinations during pregnancy, compared with only 24 of the mothers of the 269 control children. That rather slender evidence had been criticized on various grounds, and their data, to some, seemed to indicate that X-ray exposure of the mother prior to conception was as significant as exposure during pregnancy. Such an hypothesis has had little evidence in support of it; but if it was tenable, the Hiroshima experiences of Dr. Blanch's patient's mother would be relevant. Alice Stewart had recently reported further analyses of her data. As a result, her evidence could be accepted that X-ray exposure of the mother during the second half of pregnancy might only slightly increase the risk of leukæmia in her offspring, but that exposure during the first half of the pregnancy might increase the risk or the incidence of leukæmia as much as ten times, and the incidence of malignant tumours in the offspring was also increased.

Dr. Colebatch then said that from all those studies it could certainly be concluded that exposure to ionizing irradiations could induce leukæmia in humans. There were also three other conclusions of clinical importance that could be drawn. One was that the incidence of leukæmia after irradiation bore a definite relationship to the dose of radiation. That was supported by evidence from almost all studies, but most strongly so by the Hiroshima study and by the ankylosing spondylitis study. The third conclusion of importance was that a definite latent interval existed between the time of exposure to radiations and the time of onset of the clinical picture of leukæmia. For acute leukæmia, that latent interval was usually about three to five years, perhaps less in the case of irradiation during pregnancy. For chronic leukæmia the latent period might well be longer than five years. Not all types of leukæmia were influenced by irradiation. Faber had recently studied the histories of over 800 cases. Previous diagnostic X-ray exposure of the patient within five years of the onset of leukæmia had occurred in 17% of cases of acute leukæmia and in 12% of cases of chronic myeloid leukæmia, but in only 8% of cases of chronic lymphatic leukæmia and in 8% of controls. Similarly, a history of previous radiotherapy seemed of no significance in chronic lymphatic leukæmia, but it was four times as frequent in the cases of chronic myeloid and acute leukæmia.

Dr. Colebatch said that from his own material he had two observations to contribute on the subject. First, he had kept records of irradiation during pregnancy whenever practicable in the past two years. Not more than one-fifth of the patients had any significant history of such irradiation, which was in keeping with Alice Stewart's figures. However, in her cases the radiation dosage was undoubtedly higher, for in Britain it seemed that X-ray pelvimetry was often carried out in the first half of pregnancy—until her report appeared. The commonsense advice was to avoid major diagnostic studies that involved the mother's abdomen, particularly during the second, third and fourth months of pregnancy.

The other contribution concerned the types of leukæmia being seen. Myeloid leukæmia had previously been an uncommon diagnosis in Australia. During his leukæmia studies of 1948-1951, the proportion of cases labelled myeloid was 10% to 15%. A couple of years previously he had thought rather a lot of them were being recorded, and so an analysis had been prepared of the numbers of each type encountered over the three-year period to March, 1959. No change had been made in the criteria for diagnosis, and no significant change in the personnel reporting the diagnoses. The figures read: lymphatic leukæmia, 53 cases (59%); myeloid leukæmia, 24 cases (27%); not specified, 12 cases; total, 89 cases. Thus, in the past three years, 31% of cases given a definite diagnosis were labelled myeloid leukæmia—at least twice the proportion of ten years previously. All those considerations led one to wonder whether the increase in leukæmia, which was certainly occurring in children, was not all due to an increase of the myeloid type, both acute and chronic and whether if at least most of the increase was not due to the considerable and continuing increase in exposure to irradiation.

British Medical Association.

SOUTH AUSTRALIAN BRANCH: SCIENTIFIC.

A MEETING of the South Australian Branch of the British Medical Association was held on September 1, 1959, at the Repatriation General Hospital,[1] Springbank, South Australia. DR. G. T. GIBSON, the President, in the chair. The meeting took the form of a series of clinical demonstrations by members of the staff of the hospital.

A Case for Diagnosis.

DR. MARGARET RUTTER and DR. RODERICK MCEWIN presented a case of fever for diagnosis. The patient, a man, aged 43 years, had served in the Royal Navy in the Mediterranean before migrating to Australia in 1951. Since a severe attack of pneumonia in 1945 he had had bronchiectasis, and he had almost annual attacks of pneumonia. One such attack brought him to hospital on May 20, 1959. This settled down in a few days, but on the twenty-second day after his admission, having been quite well, he developed a high temperature which recurred daily for twenty days, reaching 104° and 105° F. In this time, his general condition deteriorated and he lost two stone in weight. There were no localizing signs to account for the fever, which failed to respond to several antibiotics. During the febrile period the serum protein fractions were compatible with a collagen disease, but no L.E. cells could be found in three examinations. The white cell count was not above 9000 per cubic millimetre, and the chest X-ray findings were normal. Three blood cultures, microscopic examination of the urine, agglutination tests, and examination of a thick blood film for malaria gave negative results. Later he developed areas of hypoæsthesia in the hands and feet, and the erythrocyte sedimentation rate remained high for five weeks after the fever had subsided and his general health had recovered.

In reply to a question by DR. P. P. BATEMAN, the patient said that he had never been ashore at Malta, and that milk was obtained from merchant ships.

DR. T. P. DEARLOVE drew attention to the fact that the patient had had pain in the large joints of the lower limbs since the illness.

DR. R. A. BURSTON, having examined the patient during the secondary fever, suggested the presence of pus formation in an area radiologically hidden, the paravertebral gutter or the mediastinum. He discounted the evidence of the serum protein pattern.

DR. H. R. PLAYER agreed, pointing out that the pattern was altered purely by fever.

Dr. Burston suggested that the white cell count was not incompatible with the presence of loculated pus, as the bone marrow might have been suppressed by chloramphenicol.

DR. J. G. SLEEMAN considered that the various white cell counts of 9000 per cubic millimetre and under excluded a pyogenic cause for the secondary fever. He suggested that the cause of the secondary fever was a sensitivity state induced by the use of antibiotics in the initial febrile period on the patient's admission to hospital.

DR. ROBERT HECKER agreed with Dr. Sleeman that the history was not one of lung abscess, and mentioned as possible causes to be excluded virus pneumonia, drug allergy and carcinoma of the bronchus.

DR. STEPHEN MILAZZO said that anæsthesia in various sites was suggestive of polyarteritis nodosa.

DR. H. R. GILMORE considered that the radiological appearances of the chest excluded a localized lesion such as could be found in collagen disease, or an eosinophilic lesion in a sensitivity disease.

DR. W. J. R. WYNESS agreed with Dr. Gilmore, adding that there was no radiological evidence of lung abscess or empyema, and that the sharp return of the temperature to normal without the production of copious purulent sputum was against those diagnoses.

Alcoholism with Epilepsy.

DR. R. G. PAINTER showed a patient suffering from alcoholism with epilepsy. The patient had suffered mortar

[1] Acknowledgement is made to the Chairman of the Repatriation Commission for permission to publish details concerning patients under the care of the department.

bomb-blast at Tobruk, which caused exacerbation of old middle-ear disease. There was no record of intracranial damage. He had been a miner and a heavy drinker for 30 years. Although his age was 52 years, he looked much older. In about 1945 he had begun having giddy turns and falling. He fell heavily on a paved area in 1956, sustaining a right subdural hæmatoma relieved by trephining, and since then he had been subject to major epilepsy. The main problem was the time and mode of origin of his epilepsy. Investigation had revealed localized right cortical atrophy.

DR. L. A. LANGLEY discussed the personality of the patient, and contended that the whole case hinged on whether the epilepsy had really preceded the head injury of 1956.

DR. E. PETRIKAS questioned the value of psychometric tests in establishing the existence of organic brain damage.

Dr. Burston considered that the patient's head injuries could not be discounted, though alcoholism might have played a large part.

DR. JOHN LAST considered that alcoholic dementia alone might have accounted for the fits.

DR. M. C. FOWLER supported Dr. Last's remarks.

VICTORIAN BRANCH: SCIENTIFIC.

A MEETING of the Victorian Branch of the British Medical Association was held on September 16, 1959, at the Department of Pathology, University of Melbourne. The meeting took the form of a demonstration arranged by the Department.

Disseminated Sclerosis.

R. McD. ANDERSON presented a summary of the salient clinical and diagnostic features of disseminated sclerosis, together with laboratory findings and photomicrographs showing the histopathological changes. Recent work in the experimental field was also reviewed. Dr. Anderson said that the natural disease had not proved infective for any experimental animal, and had not been accurately reproduced by any experimental procedure. However, an experimental encephalomyelitis could readily be induced by subcutaneous injection of mammalian brain into animals of the same or different species, and the process was facilitated by mixing the brain material with adjuvant substances. Photomicrographs of lesions induced in that way in recent experiments in the Department were presented.

Cortisone-Induced Renal Changes.

THELMA J. BAXTER reported a series of experiments recently conducted in the Department, in which excessive doses of cortisone were administered to rats; it was noticed that kidney abnormalities developed. They were investigated by microdissection, and considerable alteration of the nephrons was found. The glomerular tuft was often dense and somewhat shrunken, but the tubules and even the capsule of Bowman had undergone cystic dilatation. The enlarged tubules often showed corkscrew twisting, due to inequalities in the degree of dilatation. Photomicrographs of the abnormalities were displayed.

Cytological Changes Following Injury.

I. K. BUCKLEY described cytological changes following injury. He said that after mild injury to cells, there was an escape from them of transparent blebs and vacuoles. Those moved out into the surrounding fluid and gradually dissolved. They were first noted in the transparent ear chamber in the rabbit, but had since been demonstrated in epithelial cells of many types both from man and from animals. It had been found that they were rapidly disrupted by lecithinase. In view of the general resemblance of those structures to the rods, tubules, blebs and vesicles formed when lecithin and water were mixed, the artificial myelin figures so found had been reinvestigated and compared with the structures emitted from damaged cells. Both types were demonstrated by a series of photographs.

Experimental Cirrhosis.

G. S. CHRISTIE, MARGOT J. BAILIE and R. N. LE PAGE presented a demonstration summarizing the current views regarding the nature and mode of development of cirrhotic processes in liver, using illustrations from experimentally produced lesions. Recent work on the action of the selective liver poison dimethylnitrosamine was demonstrated. It was pointed out that in acute doses that substance could cause extensive necrosis due to respiratory inhibition. Chronic administration caused a nodular cirrhosis, and eventually hepatomata. Attention was drawn to the fact that the carcinogenic properties of the agent were reflected in cytological changes in the liver cells long before the development of malignancy. It was therefore suggested that, in certain naturally occurring cirrhoses of man and animals, a carcinogenic process might be in operation in addition to the recognized processes of destruction and regeneration of liver cells.

Prizes, Books and Papers.

JEAN GITTINS presented the results of a survey of the research activities of the Department of Pathology in the form of prizes, books and papers published during the 80 years of its history. Graphs were shown depicting annual student and staff numbers as well as the financial situation as existed during the period under review. Those were compared with the results achieved. A further graph illustrated the ratio of staff to production. That highlighted the outstanding performance of the staff during the 1930s. Exhibits included prizes, prize essays and some of the many contributions to medical literature in the form of published papers and books.

Developmental Anomalies in Art.

C. R. GREEN said that the sculptures, drawings and paintings of many cultures and eras depicted deformed subjects, and the nature of the anomaly was often clearly recognizable. Numerous examples from the prehistoric, Egyptian, Greek, Indian and recent periods were available, and photographic reproductions of some of them were displayed.

Care and Management of Surgical Specimens.

C. R. GREEN contrasted examples of the common ways in which specimens were damaged by mismanagement with the results of proper preparation. He stressed the importance of using adequate quantities of fixative, a container of ample size, and forethought in cutting and dissecting the specimens. It was shown that those precautions could provide increased information for the surgeon, student and research worker. Perfusion of solid organs by the veins prior to cutting, and the pinning-out of bowel specimens before fixation, were emphasized as being extremely valuable.

Experimental Rickets.

KATHRYN N. HAM and E. STOREY pointed out that rickets could be defined as faulty calcification of normal osteoid tissue or cartilage. The ætiology and pathology of natural rickets were first reviewed, and it was pointed out that rickets produced by avitaminosis D in combination with a diet of high phosphorus and low calcium content in the rat was a close experimental analogue of the natural disease. The pathological changes in that condition were shown to be failure of cartilage growth, the formation of excessive amounts of osteoid tissue and resorption of existing bone. Another type of artificial rickets could be produced by excess vitamin D. At first rapid bone resorption took place, and that was followed by massive deposition of osteoid tissue on withdrawal of calciferol. Photomicrographs illustrating the histological changes were displayed, and it was shown that repeated courses of calciferol could eventually produce a form of sclerosis.

Enzyme Maceration of Kidney for Microdissections.

NANCY J. HAYWARD said that a key step in successful microdissection of nephrons was a carefully controlled maceration procedure, which allowed ready separation of those elements without altering them too greatly. The standard maceration procedure required the use of acid, but the subsequent staining of the isolated nephron was rendered difficult. Improved maceration methods using collagenase had been developed, and it had also been found that incubation in acetone had many advantages.

Canine Ovarian Tumours.

ANNE G. JABARA demonstrated the pathology of an experimentally induced ovarian papillary adenocarcinoma. Eight bitches had been submitted for periods of up to nineteen months to continuous treatment with stilbœstrol, and seven of them developed carcinoma of the ovary. In three cases peritoneal metastases were present at the time of death. In the eighth animal, the ovarian changes were interpreted as premalignant hyperplasia.

Frozen Unfixed Sections.

C. J. LOUIS demonstrated an improved method of cutting frozen sections of unfixed tissue. The unfixed tissue was snap-frozen in isopentane and chilled in a Dewar flask

by solid carbon dioxide. The cryostatic equipment consisted of a Minot-type rotary microtome permanently mounted in a deep freeze. The frozen tissue was attached to the specimen holder of the microtome without being thawed, and the sections were flattened and attached to the slides with the aid of a small quantity of chilled alcohol. Thinner sections could be cut than with the normal type of freezing microtome, and the arrangement was superior for both routine and research purposes, especially when unfixed sections were required for histochemical purposes.

Breath Analysis for Alcohol.

N. E. W. McCALLUM described how the concentration of alcohol in the breath could be estimated by a colorimetric procedure on a sample of the exhaled air. An instrument developed overseas was demonstrated in use, and the principles of its operation were explained by diagrams. It was pointed out that the accuracy and reliability of the instrument were at present under investigation in the Department.

Experimental Renal Lesions.

D. W. MENZIES said that in the rat, hypertension could be regularly produced by partial obstruction of the renal artery of one kidney in the presence of an intact kidney on the opposite side. The method of fabricating the clip and placing it in position was demonstrated. A comparative series of photomicrographs was displayed, showing the lesions produced in the glomeruli and vessels in the unclamped kidney and lesions occurring in the human kidney in natural disease.

Endocrine Causes of Hypertension.

J. D. TANGE demonstrated the clinical, biochemical, pathological and diagnostic features of three endocrine causes of hypertension—phæochromocytoma of the suprarenal, Cushing's syndrome and primary aldosteronism. The pathological material was illustrated from actual cases.

Electron Microscopy of Smears and Tissue Cultures.

S. WIENER demonstrated the techniques which had proved valuable in preparing for examination by the electron microscope specimens of cells in pathological fluids or tissue culture. It was pointed out that some of the methods had been developed in the Department. A selection of electron photomicrographs of general interest was shown.

VICTORIAN BRANCH: PREVENTIVE MEDICINE SECTION.

A MEETING of the Preventive Medicine Section of the Victorian Branch of the British Medical Association will be held on March 10, 1960, at the Medical Society Hall, 426 Albert Street, East Melbourne, at 4.30 p.m. Dr. L. J. Hartman, Medical Officer of Health of the City of Brunswick, will speak on "Preventive Medical Services in the City of Brunswick". All interested are invited to attend.

Out of the Past.

LECTURES ON HEALTH.[1]

(To the Editor of the *Australasian Medical Gazette*.)

[From the *Australasian Medical Gazette*, July, 1899.]

SIR: Year after year a wail goes up from the souls of thousands of medical men that the task of making a living in the profession is increasingly difficult. Yet we have doctors by the scores lecturing on "Health", and unblushingly advocating the adoption of measures for the limitation of disease, and the imperilling of our languishing revenues. With a few exceptions, too, these lectures are given by sucklings, and their audiences are mostly composed of old women of both sexes, a sprinkling of tittering girls, and a lonely group of wrinkled spinsters. These innocents take unction to their souls that the lectures are for their benefit, and not a covert advertisement for the lecturer, which is only another example of their sublime credulity!

Now, if a doctor happens to fall from grace so far as to advertise his hours in the lay press, beyond a few days, of course, up goes an execration of an awful texture from an outraged profession. Then why not mete out the same dose to the man who knows in his heart that his lectures are not so much to cater for those requiring the knowledge as to get a chance to rub shoulders with another's bread and butter? Again, why are we expected by the public to be less conservative than lawyers? Their professional training is not more costly than ours. And yet whoever heard of a lawyer—unless he was an inspired idiot, and he is not generally built that way—openly advocating cheap law or shrieking for simplified legal procedures? Then dentists have we, humane and philanthropic no doubt, but do we hear of first aid lectures on dentistry? And a pharmacist sunk in such utter depravity as to teach the art of dispensing to the great unwashed would be instantly signed up as a dangerous lunatic, and very properly too.

But of course some will say I am a cynic, without any of the milk of human kindness in my soul, and that I ought to be impaled for such revolutionary doctrines. The rabid may even say I am positively wicked, and am attempting to subvert the traditions of the dear old profession, in which the hope of more than plain hash for the present, and a nest-egg for old age, must be sacrificed to the Christian virtue known as self-denial—otherwise starvation. Well, then, all I can say is that of late years the acuteness of the struggle for existence has led me to do a lot of sober reflection. More, it has induced me to join those men who have the bad taste to believe in the first law of nature, and the consignment to Hongkong or elsewhere, of the public who will forget to succour us when we are old and infirm. And if some of us exhibit a greater respect for the filthy lucre than for the maudlin sentiment preached to us by the curled darlings of the healing craft, who sleep in their cosy beds while the rank and file shiver by the side of Dr. Hardup's tangled progeny, it is because sentiment does not silence the clamorous baker, or bring back the smile to the cheek of the bile-stained heathen who brings round the "cabbagee".

The practice of charity is admirable on a full stomach—but when gaunt want and debt stalk through the house the poetry is knocked out of copy book texts.

I am Sir, etc.,

Newcastle, July 3rd, 1899. R.H.T.

[1] From the original in the Mitchell Library, Sydney.

Correspondence.

CANCER, A DISEASE OF THE NERVOUS SYSTEM.

SIR: Those who feel with Dr. Haynes that out of apparent chaos in medicine is coming order should read again his letter published in the Journal on January 30, 1960, and should especially ponder the extracts:

> I presume that the symptoms described occurred during or immediately after the initiating coitus and that by the term "an attack of pregnancy" Dr. Armati means abnormal pregnancy—pathological pregnancy. . . . Pathological pregnancies are often a manifestation of autonomic dyspraxia; normal pregnancy never . . .
>
> In a case experiencing delirium and a feeling of collapse in the initial stages, this summation of genetic weakness and emotional stress was suprathreshold, caused commotio hypothalami, and peripheral malfunction occurred. In such a case further occurrences of autonomic dyspraxia could be expected throughout the pregnancy.

It can be inferred from this that the symptoms which I had enumerated in my letter (the usual components of coitus) can be accepted as physiological only if the pregnancy which might follow the act is a normal one. Otherwise they are the first manifestation of a series of pathological episodes. This must make life for the autonomic dyspractitioner much less chaotic (in retrospect) than it is for others.

But how are we to subject the hypothesis to critical examination? The clue lies perhaps in the penultimate paragraph of Dr. Haynes's letter. If routine post-coital

electroencephalographic studies were to be carried out on a sufficiently extensive scale, it might be possible to decide in a given case whether the coital phenomena were benign or not, and so to predict whether physiological or pathological pregnancy was to be the outcome. This may possibly be the only way to test by experimental methods the apparently nebulous speculations of the generalized theory of autonomic dyspraxia.

Yours, etc.,

44 Martin Place, Sydney. ROY E. ARMATI.

February 16, 1960.

POPULATION PRESSURE.

SIR: Pardon my wonder at your leading article, "Population Pressure" on January 30. Perhaps if the author had substituted the word "underdevelopment" for "overpopulation", his mind would have become sterile as to further thoughts on this "menace" (and the problem automatically solved).

Yours, etc.,

Portarlington, Victoria. L. D. RENOUF.

February 11, 1960.

GENERAL PHARMACEUTICAL BENEFITS.

SIR: An appraisal of the problems which have been set us by the recent legislation on pharmaceutical benefits might, I feel sure, be profitably undertaken against a background of appropriate history.

In the period of economic depression, which bridged the 1920's and 1930's, was born the belief that it was the duty of governments to legislate so as to protect the less fortunate members of society against "the slings and arrows of outrageous fortune". Health was one aspect of this general problem, the care of which became regarded "as a social duty and no longer entirely an individual responsibility".

The concept of a health scheme to the nation having been accepted, the ensuing years found the parliamentarians, both Liberal and Labour, examining the legislative and administrative problems and enacting a number of measures which were, for the most part, incomplete, impracticable and unacceptable to the profession. The Federal Council of the British Medical Association in Australia was itself no less active in seeking to find a scheme which would give to the community as a whole a satisfactory health service, and at the same time preserve the freedom, rights and privileges of the profession.

While deliberations of this general nature were still in progress, a Pharmaceutical Benefits Bill was introduced by McKenna (Labour) in 1944. Its basic provision was that medicines must be prescribed from a Government formulary if the patient were to obtain them free. This Act was regarded as an encroachment on personal and professional freedom, and was declared invalid by the High Court on application by the Victorian Branch.

In 1946, the Labour Party sought by referendum and obtained extended powers to deal with health matters, and in June, 1947, the Pharmaceutical Benefits Bill, 1947, was passed. This again bound the profession to the use of a formulary and of governmental forms. It contained a number of penal clauses, and gave extraordinary scope for further legislation (as well as determination of penalties) by regulation.

This measure failed because 98% of the profession supported Federal Council in its opposition to the Bill. This opposition expressed itself in refusal to accept or utilize forms or formulary. Ultimately a 1949 amendment to the Act provided the opportunity for an appeal to the High Court on the grounds that it constituted civil conscription. The appeal was upheld and the Act annulled.

In 1949, Labour was defeated at the polls and Sir Earle Page became Minister for Health in a Liberal-Country Party Government. A state of *bon rapport* was established between him and the profession, who accepted, without much quibble, the conditions of his *Pharmaceutical Benefits Act*, 1950. A formulary was still to be used, but it was to contain only the expensive life-saving drugs. Prescriptions for these had to be written in duplicate, and there were inevitable limits set to quantities and, of course, annotations to set at the head of each script.

The essential substance of this 1950 Act became Part VII of Sir Earle Page's *National Health Act*, 1953. This was a masterly piece of legislation, embracing every major aspect of the national health problem, much of it readily acceptable to the profession.

However, it has always been my conviction that the method of prescribing accepted by us in 1950 is no less objectionable as that envisaged by McKenna. Our desire to demonstrate good-will led us to make unfortunate and dangerous concessions. The formulary, at first limited, has been extended considerably. We are subjected to ever-recurring alterations as to drugs, quantities and repeats available, and in respect of the various annotations aforementioned. The direction to write prescriptions in duplicate is, in itself, a form of civil conscription. We have been conscripted to act, not in a medical capacity, but as unpaid clerks and book-keepers for the pharmacist.

Now, with the passing of the *National Health Act*, 1959, we can see ourselves getting deeper and deeper into the bureaucratic mire. Verily here "is the great Serbonian bog where armies whole have perished".

The new formulary is to be extended to embrace most drugs in common use—the total number of drugs and preparations listed is 964. Drugs are listed alphabetically in their chemical or B.P. names. A proprietary index is to appear in another book. There are no less than 62 administrative clauses. Restricted drugs and preparations number 145, and restrictions in respect of some drugs come under as many as six headings.

The following extract from the new book makes interesting reading:

> A medical practitioner may not direct in a prescription for a pharmaceutical benefit that the benefit is to be administered in a manner other than a manner (if any) determined by the Minister or as set out in Section 2 of this book.

This cannot be regarded as anything but blatant interference with our professional freedom and skills. It has all the obnoxious qualities of the McKenna scheme and would appear even more burdensome. Let us have nothing whatsoever to do with it. To accept it would be tantamount to committing professional suicide.

Yours, etc.,

233 Macquarie Street, Sydney. MARGERY SCOTT-YOUNG.

February 15, 1960.

SIR: On Tuesday, March 1, I can foresee the following situation occurring.

At 11 p.m. my door-bell will ring, and a patient with a throbbing finger will present himself for the first time. Having run out of the stock of penicillin I had on hand, and having no mind to embark on the procedure of multiple "five bob" outlays at my own expense to perpetually guard against this contingency, I shall write out a prescription for six mega-units, hand it to the patient with the admonition to take it, plus 5s. of his own, down the street to knock up the local chemist, to return to me, waiting in dressing gown and slippers, and receive my further ministrations.

I trust the clinical soul of the Minister for Health will be shocked by the chronic stress syndrome his department bids fair to precipitate.

Yours, etc.,

Rosanna Medical Centre, Victoria, N.22. KENNETH N. GRIGG.

February 8, 1960.

SIR: May I, rather belatedly, congratulate Dr. E. S. Stuckey on his letter (*MED. J. AUST., January 16, 1960*) for two main reasons: firstly, because this is the first time, at least recently, that a member of the Branch Council has expressed a controversial opinion, thus enabling his constituents to judge him on views expressed, rather than on often meaningless biographical details on the official election circulars; secondly, because he appears to show a greater appreciation of political realities as applied to the profession, than our other "representatives".

I cannot help but feel that the letter by Dr. C. H. Jaede and Dr. C. B. Ingle (*MED. J. AUST.*, February 20, 1960) contains a lot of truth when implying that our Federal and State Councils are accepting conditions from the

present Federal Government, which justifiably, they would strongly oppose if offered by a Labour Government.

It seems a pity that our representatives are not prepared to take a tough, independent line with Liberal Governments. We would probably profit by appointing Labour men to negotiate with Liberal Governments and Liberals to deal with Labour Governments.

Yours, etc.,

37 Station Street, Guildford, N.S.W.
February 22, 1960.

R. E. KLUGMAN.

SIR: May I associate myself with Dr. Chapman and Dr. Hughes in congratulating Dr. Stuckey on his long and efficient letter on the above subject? At the same time, it is to be remembered that Dr. Stuckey is a member of the B.M.A. Council. His letter to some extent created in my mind the picture of a general upbraiding his private soldiers for failing to launch an attack on the enemy. Just what is the Council doing about it?

The immediate issue involved in the new scheme is an advantage to the public. The voters will get more for less expense. Since that is so, we, the ordinary doctors, must be very careful.

When I was in Britain before nationalization took place, the profession had been for years slowly involved in a skeleton framework, such as these new benefits constitute. Already our specialists have had a framework of fees thrust upon them, and a pretty dangerous picture it would paint in a national scheme divorced from supporting cash payments. Once the skeleton framework of nationalization is completed, all that will be necessary to defeat us will be a serious rift between the doctors and the trade unions. The Press is already getting restive in the matter of fees.

Let us, therefore, whatever we do, not be greedy in preventing the public from gaining their benefits both in kind and in cash. But let us attack the Government through the voters. We should be agreeable to what the public gets, but for extra work involved for us, such as writing extra prescriptions, there should be a *quid pro quo* with plenty of Press contacts. As things are, the record of the B.M.A. Councils does not create a favourable impression that they have the ability to handle the dangerous storm on the horizon. Their handling of remunerations for the ordinary doctor under the pensioners' repatriation and workers' compensation schemes has failed to show any organization of the rank and file of the profession along the brilliant lines they adopted at the general elections at the beginning of the present decade.

I would like therefore courteously to return the ball to Dr. Stuckey's court—preferably for replay.

Yours, etc.,

133 Wigram Road, Glebe, N.S.W.
February 4, 1960.

JOHN A. McCLUSKIE.

THE PROBLEM OF INJURY AND ACCIDENT.

SIR: Dr. H. R. T. Hodgkinson has drawn attention to the problem of injury and accident in this country (MED. J. AUST., December 26, 1959). In his timely letter he points out that in Great Britain, despite the Orthopædic Association memorandum of 1943, the accident services there are inadequate because of four failures—organization, staffing, accommodation and surgical training—and that these failures are similarly applicable in Sydney.

The 1943 memorandum was of particular value, in that it was published at a time when the accident service in Great Britain had just had its severest test. It is a sad commentary that today, 17 years later, the situation is unchanged, and the wartime experience lost to the post-war generation.

If we consider the road toll alone in Australia and place it against the loss to the economy of the country and the enormous cost of prevention, it becomes obvious that the establishment of accident units should have first priority (i) to save life, (ii) to prevent or minimize disability.

Despite the predominance of injuries of the locomotor system, the bulk of fatal injuries are head, chest and abdominal. These require the immediate attention of the appropriate consultant, if lives are to be saved. If this saving of life is accepted as the primary aim of the accident unit, then the administrative head should be a person with a wide knowledge of resuscitation, traumatology and of "putting first things first". The numerical preponderance of injuries of the extremities does not appear a valid reason in itself for choosing an orthopædic surgeon. Rather the experience and discipline gained with a wartime field surgical unit would appear suitable qualifications. Possibly an anæsthetist would be the best equipped and most acceptable choice for the post of administrative head.

In the prevention or minimizing of disability, rehabilitation plays an important role. To be most effective, the rehabilitationist should be involved in every case with potentially disabling injuries, within 48 hours of operation. His functions are to make an evaluation of the total person, organize the paramedical team towards reablement and later resettlement.

Yours, etc.,

141 Macquarie Street, Sydney.
February 16, 1960.

ADRIAN PAUL.

DOCTORS' BAG SUPPLIES.

SIR: While we agree in principle with the concept or "List C" which enables the practitioner to carry in his bag, free of cost, the drugs necessary for emergencies, we feel that the list as it stands is outmoded, so much so that we wonder how many doctors avail themselves of it. Might we suggest the following list as a basis for what in our experience we really need?

Adrenaline in oil, 6 ampoules; adrenaline tartrate, 6 ampoules; an antihistamine—e.g., "Benadryl", "Phenergan"—6 ampoules or 1 vial; analgesics: pethidine, 6 ampoules, morphine, 6 ampoules, morphine and atropine, 6 ampoules; antibiotics: penicillin, crystalline or procaine, 6 syringes or vials; any sulphonamides in twice maximum quantity, a tetracycline (250 mg. capsules), 16 capsules; pædiatric oral suspensions—penicillin, tetracycline, sulphaguanidine, 2 bottles of each; ergometrine, 6 ampoules; a mercurial diuretic, 6 ampoules; tetanus: A.T.S. or toxoid, 6 ampoules; short-acting barbiturate—e.g., "Pentone", 25 tablets; Tab Codein Co., 50 tablets; paraldehyde (5 ml.), 6 ampoules; snake-bite antivenene, 2 vials.

We welcome comments from our fellow practitioners.

Yours etc.,

Box 138, Mansfield, Victoria.
February 18, 1960.

L. E. VINE and L. G. WHEELER.

TETANUS PROPHYLAXIS.

SIR: Dr. T. Walsh's letter published in THE MEDICAL JOURNAL OF AUSTRALIA, January 23, 1960, advises giving tetanus toxoid (1 ml.) to all cases of penetrating and dirty wounds, but not A.T.S., even in patients who have not been immunized. Severe wounds with shock and tissue destruction are excepted.

A woman, aged 25 years, injured the terminal phalanges of two fingers in a motor lawn-mower. She stated that she had been immunized against tetanus as a child and had a "booster" 11 years ago. Consequently tetanus toxoid (1 ml.) was given, but no A.T.S. Subsequent inquiries from her mother revealed that the patient had not been immunized against tetanus.

The patient developed tetanus; the first symptoms appeared nine days after injury. She recovered after three weeks' active treatment. The course of the disease in her case was no less severe than the average case of tetanus admitted to this hospital, not having had any injection, toxoid or A.T.S.

Yours, etc.,

Mackay Base Hospital, Mackay, Queensland.
February 15, 1960.

E. J. HARGREAVES.

CORTISONE-INDUCED HERPES BLINDNESS.

SIR: It appears that the dangers of local ocular cortisone must be repeatedly brought to the notice of your readers. The visual loss caused by the indiscriminate use of local steroids must be quite considerable. Since dendritic keratitis in its earliest stages cannot be diagnosed adequately without a slit-lamp, surely it is reasonable that local cortisone therapy, with or without antibiotic, should not be undertaken without slit-lamp examination.

The unfortunate ophthalmologist who has to treat cortisone-induced herpes simplex keratitis is in a difficult position. If he withdraws the cortisone, he will not enhance his reputation, since it is then that even the patient realizes that his eye is "going bad". Perforation threatens.

The only course is to give small doses of steroids locally and orally, with gradual withdrawal over a period of months. If this is done, there is a hope that the herpes simplex infection will burn itself out with or without iodinization.

It is still not generally realized that herpes simplex infection is by far the most serious common infection of the eyes, and the one most commonly misdiagnosed.

At a recent clinical meeting in the Goulburn Valley, a film entitled "Ocular Inflammations" (loaned by the Pfizer Corporation) was shown. This gives a lucid picture of the danger of these drugs, and this film (or others similar) should be shown to practitioners throughout the country.

Medical students spend much time learning not to mask symptoms of acute abdomen with morphine. As a corollary of this, do not mask an acute eye with cortisone. Blindness may result.

Yours, etc.,

MARK F. ROCHE.

26 Fryers Street,
Shepparton,
Victoria.
February 17, 1960.

Obituary.

ERNEST FARENCE CHIN.

WE are indebted to Dr. Adrian Paul for the following account of the career of the late Dr. Ernest Chin.

The death of Ernest Farence Chin, at the age of 46, has deprived the world of one of its most brilliant pioneers in thoracic surgery. He was killed on December 5, 1959, when the car he was driving skidded on a patch of ice, a quarter of a mile from his home at Nether Wallop.

Born in Australia, Paul Chin received his early education in New Zealand, and in 1932, entered Knox College, University of Otago. In his fresher year he represented his university in the fifteen and was considered for the All Blacks. The following year he returned to Australia and entered the medical course at the University of Sydney. Study was never easy for him, and it is to his credit that he was in the first ten when he graduated in 1940. As an undergraduate he played lock and breakaway in the university first fifteen up to final year, and on several occasions represented New South Wales.

In 1941, after a short residency at Sydney Hospital, he enlisted in the Royal Australian Navy Volunteer Reserve as a surgeon-lieutenant, and was seconded to the Royal Navy. Whilst serving in a destroyer on the Arctic Convoy, he had the misfortune to fracture a femur. He was treated in a Russian hospital until a Navy patrol "rescued" him and brought him back to Scotland. This insult was felt so keenly that protests were made at the highest level from Moscow to London. His subsequent service was in the Mediterranean, in destroyers at the Sicily landing and finally as an assistant surgeon at the Royal Navy Hospital, Malta.

After demobilization in 1946, Paul Chin was appointed Demonstrator in Anatomy to Professor Kirk at Middlesex Hospital. In 1947 he became a Fellow of the Royal College of Surgeons, England, having been runner-up for the Hallett Prize in the primary examination. His first appointment in thoracic surgery was at Harefield Hospital, Middlesex, under Mr. Holmes Sellors, who quickly appreciated his ability and reliability. It was largely due to Mr. Holmes Sellors that he was appointed as Director of Thoracic Surgery for the western area of the South-West Metropolitan Hospital Board. He was entirely responsible for building up the thoracic unit at the Southampton Chest Hospital, where previously no thoracic surgery had been performed. In these eight years his unit came to be known as one of the outstanding thoracic units in the United Kingdom, and he personally achieved an international reputation. In 1956 he performed the first successful operation for the removal of an intracardiac myxoma. This achievement was heightened by the fact that it was the first time the diagnosis had been made by the surgeon before operation. In 1957 he was honoured by being chosen as a Hunterian Professor. When the British Medical Association held a clinical meeting at Southampton, it was Mr. Chin who performed a repair of a septal defect, which was televised in colour over a closed circuit and watched by a medical audience of 200.

Mr. Chin made notable contributions to medical literature on chest deformities, diaphragmatic hernia and hypothermia in cardiac surgery. His technique for the correction of parasternal defect brought a new concept to this difficult surgical problem. He was recently elected to the Council of the Thoracic Society.

A visit to his unit revealed much of the character of its director. There was an air of calmness, dependability and the team spirit in the staff, and confidence amongst the patients. Even the patients' chairs were an example of his originality of thought—all rocking chairs to minimize peripheral thrombosis.

He had wide interests, but dedication to his profession left him little time to pursue them. However, he managed to find some spare time for fly-fishing in Hampshire trout streams and took a keen interest in growing roses. His interests and his pleasures were all highly civilized ones.

Paul Chin met his wife, Margaret Josephine, whilst convalescing in Scotland, when she was in the Red Cross and he was in the Navy. They were married at Barnhill, Ayrshire. The eldest son, Jeremy, is 16, Mark is 12, and Richard is 12 months old. It is a great sorrow that sudden death should deprive them of their father, a great and dedicated man, a coming leader in thoracic surgery, who had already risen to a position of distinction in Great Britain.

ROBERT COLIN MOORE LAVERTY.

WE are indebted to Sir William Morrow for the following account of the career of the late Dr. Colin Laverty.

Robert Colin Moore Laverty—"Tas", as he was known to his wide circle of friends—left us on June 5, 1959, and his going leaves a gap in our ranks which cannot be filled.

A worthy product of Newington College, where he distinguished himself as a rugger player, an oar, and a debater, he soon became a figure in undergraduate life at the University of Sydney, which he entered in 1922. A clear thinker and good speaker, he was always active in the

corporate student life, but his main interest was in rowing. Possessed of a long, straight back with powerful legs, he was an accomplished and stylish oarsman, a "blue" who rowed in the university crew for three years. It was a source of great joy to him and satisfaction to his many friends that he was spared to see his son Colin, also a medical student, row in the university crew and be awarded his "blue".

Joining us at the Royal Prince Alfred Hospital as a junior resident medical officer in 1928, he was popular with all members of the staff, both medical and nursing, as well as with his patients. He stayed but a year, and then became a senior resident medical officer at the St. George District Hospital and subsequently medical superintendent. It was here that he met Dr. Beryl Plummer. They were married in 1934, thus commencing a long and happy union. Colin Laverty remained attached to this hospital until his untimely death. Always interested in surgery, he was at first an honorary medical officer, then assistant surgeon and finally honorary surgeon. A good teacher, he was ever ready to encourage the young graduate and to induct him into the intricacies of general surgery, and many men remain deeply grateful for his help.

He commenced practice in his old family home at Bexley, and for years conducted a very large general practice, endearing himself to thousands in his area. Of late years he restricted his practice to surgery, and gained a distinguished reputation in the Illawarra area.

Tas was devoted to his art but, man that he was, he continued to serve his profession and his university. A very active member for many years of the Illawarra District Branch of the British Medical Association and of the Federation of Local Associations, he was elected to the Council of the New South Wales Branch of the British Medical Association in 1955, and later became its Honorary Secretary, which office he was subsequently forced to resign because of ill health. From its inception he was a keen member of Convocation of the University of Sydney.

A gregarious person with a deep sense of his responsibility to the herd, it was natural for him to serve his country, and so World War II found him serving as a surgeon specialist with the rank of major.

Our sympathy goes out to his wife Beryl, his loyal and constant companion, and to his son and daughter, of whom he was so proud. A loyal friend, a good doctor, a citizen beloved by all who knew him—*vale*, Tas.

DR. W. F. SIMMONS writes: Colin Laverty was born at Paddington, New South Wales, on January 11, 1903. He was the son of the Reverend Robert Laverty, a well-known Methodist minister, and Mrs. Laverty, who was equally well known for her philanthropic and political work in New South Wales when Sir Thomas Bavin and Sir Bertram Stevens were premiers of the State. His father was dogged with ill-health, and was forced to retire from the active ministry, and so it was that the family came to reside in Bexley in 1912. When Colin was eleven years old his father died, and from that time onwards his mother worked hard, moulded his character and assisted him in every way. He never forgot the debt he owed her. It was a great joy to him when in 1935 she was created a Member of the Most Excellent Order of the British Empire for her services to the State of New South Wales.

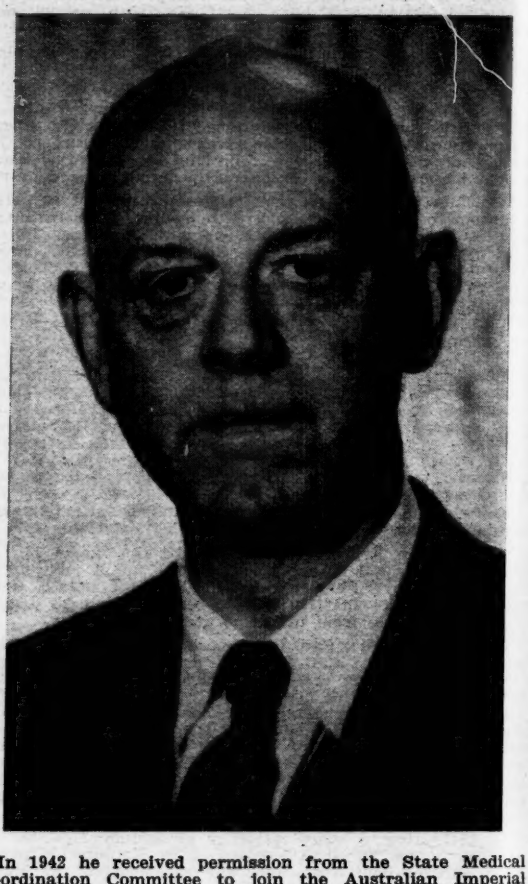
Colin received his primary education at Bexley School, and then went on to Newington, where he played his part in all school activities; he passed on to the University of Sydney as one of Newington's outstanding sons. He entered the Faculty of Medicine in 1922 and did a good course. In addition he entered into the corporate life of the university, both in sport and in the Undergraduate Association and the Student's Representative Council, of which he was president. This interest in university affairs remained with him right up to the time of his death.

After serving as a resident medical officer at Royal Prince Alfred Hospital he came to St. George Hospital as a senior resident medical officer; there he met Dr. Beryl Plummer, who later became his wife.

He acted as a senior for two years, and made such an impression on the Hospital Board and the honorary medical staff that when the position of medical superintendent became vacant he was appointed.

At this time St. George Hospital was staffed by busy general practitioners, and quite a lot of urgent and acute surgery came to the hospital. The surgeon of the week would find himself caught up with an emergency elsewhere, and such was his confidence and trust in the opinion of the medical superintendent that he would be asked to carry on until the surgeon was free to take over. This experience was most valuable in his training as a surgeon, and as he believed in wide reading and watching other men work, it laid the foundation of a sound surgical practice later.

In 1934 Colin married Dr. Beryl Plummer and decided to enter general practice in Bexley that year. Here he built up an extensive practice and earned the respect of his colleagues and his patients.



In 1942 he received permission from the State Medical Coordination Committee to join the Australian Imperial Force, and he continued in the army until 1946. On his return to Bexley he decided to concentrate on general surgery, and he gradually built up a consulting practice while still remaining in his old home. He received loyal support from his colleagues in the district, and for the next twelve years worked hard, taking few holidays and always being available for night and week-end work when other surgeons were away.

His thorough, conscientious hard work took toll of him, and seriously disabled him early in 1957, and for nine months he did no work at all. Then his physician allowed him to do consulting room work only—no visits to hospitals, etc., and no operative work. This inactivity was borne with fortitude, but he hated it. The Hospital Board granted him extended sick leave, hoping that one day he might be able to return, for they deeply appreciated his services; but it was not to be.

As one who lived within a quarter of a mile of him for forty years and who saw him almost daily for thirty years, I can say there was never a better colleague, never a better friend, and no one I have ever known who more conscientiously carried out the Hippocratic Oath as regards the resident medical officers at St. George Hospital.

Tas Laverty was methodical, deliberate, a good debater and a man to whom principles meant everything. He has left a gap among his colleagues in the Illawarra Suburbs which may never be filled; but at least we can honour his memory by trying to follow his example. Our deepest sympathy is extended to his wife, his son and his daughter.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE, THE UNIVERSITY OF SYDNEY.

Week-End Course in Neurology.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that a week-end course in neurology will be held at the Royal North Shore Hospital of Sydney on March 12 and 13, 1960, under the supervision of Dr. George Selby. The programme is as follows.

Saturday, March 12, Symposium on "Headache": 2 p.m., introduction—"Headache Mechanism", Dr. George Selby; 2.30 p.m., "Migraine and Extracranial Vascular Headache", Dr. J. W. Lance; 3 p.m., "Headache as a Symptom of Intracranial Expanding Lesions", Dr. R. Rushworth; 4 p.m., "Ocular Causes of Headache', Dr. D. L. Rich; 4.30 p.m., "Psychogenic Headache", Dr. John Ellard; 5 p.m., question time.

Sunday, March 13: 9.30 a.m., "The Management of Acute Spinal Injuries", Dr. J. M. F. Grant; 10.15 a.m., "The Early Diagnosis of Spinal Tumours", Dr. W. J. G. Burke; 11.30 a.m., clinical demonstration; 2 p.m., "Disorders of Language", Dr. K. B. Noad; 2.45 p.m., "Virus Infections of the Nervous System", Dr. J. L. Allsop; 4 p.m., "Biochemical Lesions of the Nervous System in Children", Dr. L. R. Rail; 4.30 p.m., "Biochemical Lesions of the Nervous System in Adults", Dr. L. S. Basser.

The fee for attendance is £3 3s.

Week-End Course in Electrocardiography.

A week-end course in electrocardiography will be held in the Maitland Lecture Hall, Sydney Hospital, on March 19 and 20, under the supervision of Dr. G. E. Bauer. The programme is as follows:

Saturday, March 19: 10 a.m., "Principles of Electrocardiography", Dr. J. G. Richards; 10.30 a.m., "Differential Diagnosis of the Normal Electrocardiogram", Dr. G. V. Hall; 11.30 a.m., panel discussion, "Anything New in Arrhythmias?", Dr. John Deakin, Dr. E. J. Halliday, Dr. John Raftos; 2 p.m., symposium on "Electrocardiography in Ischæmic Heart Disease"; "Is it Cardiac Pain?', Dr. D. S. Stuckey; "Has He Had a Coronary Occlusion?", Dr. F. L. Ritchie; "Is it Worth Repeating the Electrocardiogram?", Dr. G. E. Bauer.

Sunday, March 20: 10 a.m., "Variations Due to Drugs, Electrolytes, etc.", Dr. J. B. Hickie; 10.30 a.m., practical session in electrocardiography; 11.45 a.m., electrocardiographic quiz session—Dr. G. E. Bauer, Dr. G. V. Hall, Dr. E. J. Halliday, Dr. F. L. Ritchie.

The fee for attendance is £3 3s.

Method of Enrolment.

Those wishing to attend these courses are requested to make written application, enclosing remittance, to the Course Secretary, Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney. Telephones: BU 4497-8. Telegraphic address: "Postgrad Sydney".

DEPARTMENT OF SURGERY, UNIVERSITY OF SYDNEY.

Surgical Seminars.

SEMINARS are held by the Department of Surgery, University of Sydney, each Tuesday in the Clinical Room, Alfred and Mary Roberts Ward, Royal Prince Alfred Hospital, Sydney. The programme of the seminars for 1960 is as follows.

March 15, 4 p.m., "Cancer of the Skin", Dr. J. C. Belisario; Chairman, Associate Professor G. W. Milton.

March 22, 4 p.m., "Malignant Melonoma", Dr. J. C. Belisario and Associate Professor G. W. Milton; Chairman, Associate Professor G. W. Milton.

March 29, 3.15 p.m., "Case Presentation for Final F.R.A.C.S. Course", Associate Professor G. W. Milton and Mr. J. E. D. Goldie.

April 5, 5 p.m., "Vasomotor Disturbances", Mr. D. C. Mackenzie; Chairman, Associate Professor G. W. Milton.

April 12, 5 p.m., "Tumours of the Jaw", Dr. J. C. Baird; Chairman, Mr. N. R. Wyndham.

April 19, 3.15 p.m., Trial Oral Examination for Final F.R.A.C.S. Candidates.

April 26, 5 p.m., "Surgery of the Hæmatopoietic System", Dr. R. Beal; Chairman, Professor C. R. B. Blackburn.

May 3, 5 p.m., "Treatment of Acute Retention', Mr. D. D. Arnold; Chairman, Mr. M. S. S. Earlam.

May 10: 3.30 p.m., ward round conducted by Mr. N. R. Wyndham in D2 ward; 4.30 p.m., case presentation, Mr. N. R. Wyndham's Unit; Chairman, Mr. N. R. Wyndham.

May 17: 2.30 p.m., ward round conducted by Mr. H. I. Turnbull in Vic. 3 ward; 4 p.m., case presentation, Mr. H. I. Turnbull; Chairman, Mr. H. I. Turnbull.

May 24: 2.30 p.m., ward round conducted by Mr. F. H. Mills in D1 ward; 4 p.m., "Surgery in Hæmophilia", Dr. C. B. Kerr; Chairman, Mr. F. H. Mills.

May 31: 2.30 p.m., ward round conducted by Mr. S. H. Lovell in Vic. 1 ward; 4 p.m., "Trends in Surgical Treatment of Gastric and Duodenal Ulcers", Mr. S. H. Lovell; Chairman, Mr. S. H. Lovell.

June 7, 4.00 p.m., subject to be announced, Cobalt Unit; Chairman, Associate Professor G. W. Milton.

June 14, 4 p.m., subject to be announced, Dr. D. C. Maddison; Chairman, Associate Professor G. W. Milton.

June 21, 4 p.m., "Thyrotoxicosis", Dr. K. Harrison; Chairman, Associate Professor G. W. Milton.

June 28, 4 p.m., "Radiological Diagnosis of Volvulus", Dr. J. Ryan; Chairman, Dr. A. Colwell.

July 5, 4 p.m., subject to be announced, Cobalt Unit; Chairman, Dr. H. Ham.

July 12, 4 p.m., "Surgical Centres Overseas", Professor John Loewenthal; Chairman, Professor John Loewenthal.

July 19, 4.00 p.m., "Methods of Examination", Dr. S. W. Cohen; Chairman, Professor John Loewenthal.

July 26, 4 p.m., "Medical Illustration", Mr. S. Woodward Smith; Chairman, Professor John Loewenthal.

August 2, 4 p.m., subject to be announced, Cobalt Unit; Chairman, Professor John Loewenthal.

August 9, 4 p.m., "Adhesives and Surgery", Dr. B. Bloch; Chairman, Professor John Loewenthal.

August 16, 4 p.m., "Retroperitoneal Air Studies", Speaker, Dr. S. Lamond; "The Value of Gastrographin", Dr. J. Ryan; Chairman, Dr. A. Colwell.

August 23, 4 p.m., "Primary and Secondary Repair in the Surgery of Malignant Lesions of the Face", Mr. E. W. Gibson; Chairman, Mr. D. Officer Brown.

August 30, 4 p.m., subject to be announced.

September 6, 4 p.m., subject to be announced, Cobalt Unit; chairman, Dr. H. Ham.

September 13, 4 p.m., "Closed Abdominal Injuries', Mr. E. V. Barling; Chairman, Professor John Loewenthal.

September 20, 4 p.m., subject to be announced.

September 27, 4 p.m., "Current Research in the Department of Surgery", Professorial Unit; Chairman, Professor John Loewenthal.

October 4, 4 p.m., subject to be announced, Cobalt Unit; Chairman, Professor John Loewenthal.

The seminars are preceded by Professional Unit rounds, which commence at 2.30 p.m., unless otherwise specified. There will be no ward rounds on March 29 and April 19. Seminars will be resumed in March, 1961.

SEMINARS AT ROYAL PRINCE ALFRED HOSPITAL.

THE subject for the seminar to be held at the Royal Prince Alfred Hospital, Sydney, on May 20, 1960, has now been announced; it is "Current Problems in Coronary Disease". The speaker, as was previously stated, is Dr. W. Brigden, of the National Heart Hospital, London.

Notes and News.

Philippine Medical Association Contests Official's Appointment.

The following information has been supplied by the World Medical Association.

The Philippine Medical Act of 1959 provides that the appointments made by the President of the Philippines to the Philippine Board of Medical Examiners be from a list of 12 well qualified candidates submitted by the Philippine Medical Association. However, the President recently reappointed a member of the Board of Medical Examiners who had not been approved by the Philippine Medical Association although seven recommended candidates remained upon the list that the Association had submitted.

The Philippine Medical Association has filed a *quo warranto* and injunction proceeding against the individual so appointed, not as a person whose standing and capabilities are questioned but because, under the provisions of the 1959 *Medical Act*, he is the person whereby a violation of the law will be countenanced because of his appointment by the President when he was not in the list of the 12 candidates who were recommended by the Philippine Medical Association.

The case is assuming significant proportions as the decision of the Philippines Supreme Court will establish a precedent as to whether or not the President of the Philippines may disregard the recommendations of the Philippine Medical Association and appoint men whose qualifications may not meet the ideal standards established by the medical profession as being required of a medical examiner.

International War-Prophylaxis Congress.

An International War-Prophylaxis Congress for medical practitioners will be held at Noordwijk on Sea, Holland, from May 23 to 28, 1960. The speakers and leaders of discussions will include prominent persons in other walks of life. The official languages will be English, French and German. A number of social activities and excursions will be arranged in connexion with the Congress. Those wishing to attend, and also those who would like to read papers, are asked to write to the Congress Organization, addressing their letters to Professor M. Knap, 46 Schuberstraat, Amsterdam, Holland. Travel arrangements should be made with the nearest American Express office.

Committee of the Nomenclature of Blood Clotting Factors.

The next meeting of the Committee of the Nomenclature of Blood Clotting Factors will take place at Princeton, U.S.A., from September 18 to 21, 1960. The programme of the conference is partly concerned with "Thrombolytic Activity and Related Phenomena".

An opportunity exists for a young worker in the field of thrombolytic activity who wishes to attend the conference. The expenses of this guest attendant will be met by the committee. Information on this matter may be obtained from Dr. P. Fantl, Associate Director, Baker Medical Research Institute, Alfred Hospital, Commercial Road, Prahran, S.1, Victoria.

Australian Atomic Energy Commission: Irradiation Conference.

The Australian Atomic Energy Commission will hold a conference on "The Technical Use of Radiation" at the University of New South Wales, Kensington, from May 23 to 25, 1960. The object of the conference is to review recent developments and to stimulate research and interest in the technological applications of radiation. Those wishing to participate in the conference should communicate with the Conference Secretary at the following address: The Irradiation Conference Secretary, A.A.E.C. Research Establishment, Private Mail Bag, Sutherland, New South Wales. Telegraphic address: Nuclabs, Sydney. Telephone: LF 0381.

North Queensland Medical Conference.

The North Queensland Medical Conference is to be held at Rockhampton from July 24 to 30, 1960. The guest speaker will be Sir Albert Coates, of Melbourne, and the theme for the plenary session of the conference is to be "Traffic Accidents". Those wishing to attend are asked to write to the Honorary Secretary of the North Queensland Medical Conference, Dr. J. Learmonth, Tobruk House, Archer Street, Rockhampton.

Nuffield Foundation Grant.

The Chairman of the Nuffield Foundation Australian Advisory Committee, Mr. Colin Syme, has announced that a grant of £500 has been made to Professor R. R. H. Lovell, James Stewart Professor of Medicine, University of Melbourne, for studies on blood pressure in Micronesia.

In Australians and western people generally, blood pressure tends to rise with age, and this tendency is particularly marked after middle age. In 1958 Professor Lovell and his research assistant, Dr. Ian Maddocks, studied the blood pressures of two contrasted peoples, the Fijians and the Indians who inhabit Fiji. They found that the younger people of both these races had similar blood pressures to westerners, but there was not the same tendency for their blood pressures to rise steeply after middle age. Dr. Maddocks is now trying to discover why the pressures of older westerners rise so much more steeply than do those of the islanders.

To continue this work, Dr. Maddocks has been awarded a grant from the Victor Hurley Research Fund of the Royal Melbourne Hospital. The Nuffield Foundation Grant will enable him to extend his studies in Fiji and to examine the blood pressures of Micronesian peoples in the Gilbert and Ellice Islands. It is thought that blood pressure of Micronesians is lower than that of Fijians. If this is confirmed, Dr. Maddocks will try to discover the reason.

Asian Influenza in the United States.

The United States Public Health Service has secured laboratory confirmation that the current outbreak of influenza in America is the Asian strain, A2. This information has been cabled to Canberra in response to inquiries initiated by the Commonwealth Minister for Health, Dr. the Honourable D. A. Cameron, through the Australian Embassy in Washington. Dr. Cameron announced on January 26, 1960, that the United States authorities had reported that the Asian virus had been identified as the epidemic strain in 13 States in all parts of America. It was in no respect different from the outbreak experienced in America in 1957. Dr. Cameron said that information concerning the American investigations was being passed on to the State health departments and the Commonwealth quarantine authorities. The Commonwealth Serum Laboratories were already manufacturing an influenza virus vaccine which offered protection against the strain A2. This vaccine was available to medical practitioners.

International Conference on Biological Rhythm.

The seventh International Conference of the Society for Biological Rhythm will be held at Siena, Italy, on September 5 to 7, 1960. The theme of the conference is "Endogenous Rhythms". The third day will be held in conjunction with the International Basimetric Society, under the chairmanship of Dr. J. Wilder, of New York, and will be devoted to basimetry. The president of the conference is Professor Dell'Acqua, of the University of Ferrara, and the local secretary is Professor A. Caniggia, of the University of Siena. Several lecturers have been invited as referees in the fields of botany, zoology and medicine. Applications to present papers or to attend the conference should be addressed to the Secretary, Dr. A. Sollberger, Department of Anatomy, Caroline Institute, Stockholm 60, Sweden, from whom further particulars of the conference may be obtained. Those wishing to present papers must apply before June 1, 1960.

Naval, Military and Air Force.

APPOINTMENTS.

THE following appointments, changes, etc., are published in the *Commonwealth of Australia Gazette*, No. 14, of February 18, 1960.

AUSTRALIAN MILITARY FORCES.

Australian Regular Army.

Royal Australian Army Medical Corps (Medical).

The Short Service Commission granted to 3/40147 Captain (Temporary Major) R. H. Meyer is extended until 11th January, 1962.

Citizen Military Forces.

Northern Command.

Royal Australian Army Medical Corps (Medical).—To be Temporary Lieutenant-Colonel, 20th November, 1959—1/13388 Captain (Temporary Major) C. G. D. Clarke. To be Temporary Major, 27th November, 1959—1/39155 Captain B. H. Gutteridge.

Eastern Command.

Royal Australian Army Medical Corps (Medical).—2/108162 Captain J. Cameron is transferred to the reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Eastern Command), 5th November, 1959. 2/235604 Captain (provisionally) D. P. Ewing relinquishes the provisional rank of Captain, 12th November, 1959, is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Eastern Command) and is granted the honorary rank of Captain, 13th November, 1959.

Central Command.

Royal Australian Army Medical Corps (Medical).—F4/1237 Captain P. E. Rodriguez is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Central Command), 8th December, 1959.

Western Command.

Royal Australian Army Medical Corps (Medical).—5/26527 Captain (provisionally) D. G. Kermode ceases to be seconded whilst in the United Kingdom, 6th November, 1959. The provisional appointment of F5/1206 Captain J. P. Mandelstam is terminated, 4th December, 1959. *To be Captain (provisionally), 5th December, 1959.*—F5/1206 Jocelyn Phyllis Mandelstam.

Tasmania Command.

Royal Australian Army Medical Corps (Medical).—6/15269 Captain (provisionally) R. G. Smith ceases to be seconded whilst in the United Kingdom, 1st December, 1959. 6/15269 Captain (provisionally) R. G. Smith relinquishes the provisional rank of Captain, 1st December, 1959, is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Tasmania Command) and is granted the honorary Rank of Captain, 2nd December, 1959.

Australian Medical Board Proceedings.

NEW SOUTH WALES.

THE following additions and amendments have been made to the Register of Medical Practitioners for New South Wales, in accordance with the provisions of the *Medical Practitioners Act*, 1938-1958.

Registered medical practitioners who have complied with the requirements of Section 17 (3) and are registered under Section 17 (1) (a) of the Act: Bloomfield, Dennis Alexander, M.B., B.S., 1956 (Univ. Adelaide); Eastwell, Harry William Breydon, M.B., B.S., 1958 (Univ. Queensland); Halley, Peter, M.B., B.S., 1956 (Univ. Adelaide); Ho, Francis Joseph Ying Tuck, M.B., B.S., 1959 (Univ. Sydney); McKay, Albert Leslie, M.B., B.S., 1957 (Univ. Sydney); McKenna, Paul Anthony, M.B., B.S., 1958 (Univ. Melbourne); Maxwell, Richard William David, M.B., Ch.B., 1929 (Univ. New Zealand), D.T.M. & H., R.C.P. (London), and R.C.S. (England), 1939, D.P.H. (New Zealand), 1952; Oh, Michael Siew Kheng, M.B., B.S., 1954 (Univ. Melbourne); O'Reilly, Keith Aubrey de Vere, M.B., B.S., 1947

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED JANUARY 30, 1960.[1] [2]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.[2]
Acute Rheumatism	1	..	1	..	1(1)	..	..	..	3
Amœbiasis	..	..	..	..	1	..	..	..	1
Ancylostomiasis	1	..	2	..	..	..	5	..	8
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	1	..	..	..	..	..	..	1
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	2	8(6)	5(4)	..	..	..	3	..	18
Diphtheria	..	..	1	..	..	..	..	..	1
Dysentery (Bacillary)	..	..	7(1)	1(1)	1(1)	..	..	..	9
Encephalitis	1	2(2)	..	1	..	..	..	..	4
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	62(23)	32(18)	12(4)	13(6)	3(2)	..	3	..	125
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	..	..	1	..	..	..	..	..	1
Malaria	..	..	..	..	..	..	..	..	..
Meningococcal Infection	..	1(1)	..	..	..	..	..	..	1
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	1	..	..	..	..	..	1
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	1	..	1	..	..	..	..	..	2
Puerperal Fever	..	..	..	..	..	..	..	..	..
Rubella	..	5(2)	..	1	3(3)	..	..	..	9
Salmonella Infection	..	..	..	3(3)	1(1)	..	..	..	4
Scarlet Fever	4(3)	6(4)	3(2)	..	..	..	..	..	13
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	..	1(1)	..	..	..	1
Trachoma	..	..	..	..	..	..	16	..	16
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	34(19)	10(6)	16(5)	5(3)	11(9)	3(3)	3	..	82
Typhoid Fever	..	..	..	..	..	..	..	..	..
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

[2] No case of notifiable disease was reported for this week in the Australian Capital Territory.

(Univ. Queensland); Tonakie, Anthony John, M.B., B.S., 1942 (Univ. Queensland).

Registered medical practitioners who have complied with the requirements of Section 17 (3) and are registered under Section 17 (1) (b) of the Act: Boyd, John, L.R.C.P., L.R.C.S. (Edinburgh), L.R.F.P. & S. (Glasgow), 1937; Coulthard, Allan Cameron, M.B., B.Ch., 1947 (Univ. Wales); Furnass, Stanley Bryan, B.M., B.Ch., 1952 (Univ. Oxford), M.R.C.P. (London), 1958; Jaques, Elsie, M.R.C.S. (England), L.R.C.P. (London), 1953, L.M.S.S.A. (London), 1953, D.A., R.C.P. & S., 1956; O'Neill, Michael John, M.R.C.S. (England), L.R.C.P. (London), 1952; Roseverne, Victor, M.B., Ch.B., 1947 (Polish School of Medicine, Edinburgh), D.M.R.D. (London), 1952, M.R.C.S. (England), L.R.C.P. (London), 1954; Saddler, Albert Howard, L.R.C.P. (London), M.R.C.S. (England), 1946, M.B., B.S., 1946 (Univ. London), M.M.S.A. (London), 1956; Sax, Sidney, M.B., B.Ch., 1942 (Univ. Witwatersrand), D.P.H., 1948 (Univ. Witwatersrand), M.D., 1952 (Univ. Witwatersrand), M.R.C.P. (Edinburgh), 1959; Shields, William O'Neill, M.B., B.Ch., 1957 (Univ. Glasgow); Smith, Robert Archibald, M.B., B.Ch., 1953 (Queen's University, Belfast).

Registered medical practitioner who has complied with the requirements of Section 17 (3) and is registered under Section 17 (2A) of the Act: Koch, Rose, M.D., 1918 (Univ. Budapest).

The following has been issued with a licence according to Section 21B of the Act: Barkus, Valentina, Western Suburbs Hospital, issued January 7, 1960.

The following have been issued with licences according to Section 21C (4) of the Act: Peukert, Joseph, issued January 18, 1960; Abrahamowski, Zeno, Liverpool District Hospital, issued January 5, 1960; Temesvary, Andrew, Tamworth Base Hospital, issued January 27, 1960; Staszkiw, Wvadimir, Division of Psychiatric Services, issued February 1, 1960; Cerbuks, Janis, Wallsend District Hospital, issued February 7, 1960.

The following have been issued with licences in accordance with Section 21 (3) of the Act: Zoltan, Martha, Liverpool District Hospital, issued on January 11, 1960; Nakutis, Tamara, Liverpool District Hospital, issued January 18, 1960.

Medical Appointments.

The undermentioned appointments have been made in the Institute of Medical and Veterinary Science, Adelaide.

Dr. N. D. Hicks has been appointed Clinical Pathologist.

Dr. J. R. Coulter has been appointed Surgical Research Officer.

Dr. C. K. Chew has been appointed Registrar in Clinical Pathology.

Dr. R. W. Pain has been appointed Registrar in Chemical Pathology.

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Selecki, Borys Romuald, licensed November 4, 1959, to do Post-Graduate Research, C.S.R.U., Callan Park, Rozelle, New South Wales.

Deaths.

THE following deaths have been announced:

BERRYMAN.—*Cecil Bryden Berryman, on February 16, 1960,* at Melbourne.

LITTLE.—*Henry Bennett Little, on February 18, 1960,* at Woy Woy, New South Wales.

Diary for the Month.

MARCH 8.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
MARCH 10.—New South Wales Branch, B.M.A.: Public Relations Committee.
MARCH 11.—Queensland Branch, B.M.A.: Council Meeting.
MARCH 11.—Tasmanian Branch, B.M.A.: Branch Council.
MARCH 14.—Victorian Branch, B.M.A.: Finance Subcommittee.
MARCH 15.—New South Wales Branch, B.M.A.: Medical Politics Committee.
MARCH 16.—Victorian Branch, B.M.A.: Branch Meeting.
MARCH 17.—Victorian Branch, B.M.A.: Executive of Branch Council.
MARCH 18.—New South Wales Branch, B.M.A.: Ethics Committee.
MARCH 19.—Western Australian Branch, B.M.A.: Annual General Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

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ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should *not be sent. Authors are requested to avoid the use of* abbreviations, other than those normally used by the Journal, and not to underline either words or phrases.

Authors of papers are asked to state for inclusion in the title their principal qualifications as well as their relevant appointment and/or the unit, hospital or department from *which the paper comes.*

References to articles and books should be carefully checked. In a reference to an article in a journal the following *information should be given: surname of author, initials of* author, year, full title of article, name of journal, volume, number of first page of article. In a reference to a book the following information should be given: surname of author, initials of author, year of publication, full title of book, publisher, place of publication, page number (where relevant). The abbreviations used for the titles of journals are those *of the list known as "World Medical Periodicals" (published* by the World Medical Association). If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors submitting illustrations are asked, if possible, to *provide the originals (not photographic copies) of line* drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

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